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The Presidential Year Bugbear

BECAUSE in this year of grace we are going to elect, or, it may be, re-elect, a president, why should the current twelve months be less advantageous to business in general than the year just passed, or any recent similar cycle? Widespread and deep-rooted is the impression that the return of presidential year augurs ill for business; and whenever such a year passes without much slackening of trade, pessimists are painfully disappointed. That just as often as not presidential years do not run true to form has been remarked, however, by astute students of American business and political history; and the deduction is that a presidential year is fraught with no more danger to industry than any other year, and that, like the old bogie of tariff revision, the fear of it is generally much worse than the realization.

It has been pointed out that even the most severe periods of depression occurred when no national election was impending. Such, for instance, was that early in 1921, when about 5,000,000 of the 25,000,000 wage earners in the country were without work—approximately 20 per cent of the workers deprived more or less of their buying power. From this it is reasoned that the variance between the crest of the wave of prosperity and the trough of commercial depression is not at the most over 10 or 15 per cent ordinarily—a much smaller swing than has been generally supposed. In fact, it is argued that, were the American people induced to buy from 10 to 15 per cent more in a slump season, a period of prosperity would be entered upon forthwith; and, conversely, were buying power to slow up to a similar extent in a brisk season we would soon see symptoms of dull times.

But there is good reason to believe that 1924 will be just as good as any of the five fat, and unlike any of the five lean, presidential years of the past forty-three years, for example. It is largely up to the leaders of industry to make it measure up to the better periods. They owe it to themselves and to their dependents to rout the foolish superstition concerning presidential years, and should deal with political croakers just as summarily as the industrialists of Austria have treated those that would have delayed the financial regeneration of that one Mid-European country that is really coming back to normalcy.

The Crude Rubber Price Contest

RUBBER planters are said to be troubled at the seeming aloofness of the big buyers. The restriction scheme is, barring a few leaks, working like a military machine, and prices are down about 20 per cent from the peak point to which they shot after the Stevenson plan went into effect: yet the larger manufacturers apparently are not purchasing a ton in excess of actual needs. Many a planting company may be anxious enough to convert big surplus stocks of rubber into cash, yet none seems willing to coax with even small price concessions buyers who, the planters are convinced, must sooner or later come into the market and pay the full current cost of rubber in order to meet the exigent demands of consumers for manufactured goods.

Put on the defensive, the planters say that for years manufacturers have been able virtually to dictate the price of rubber and have been quite indifferent about the fate of the rubber raisers, but now that they are obliged to pay what the planters call a "living price" they are "distinctly petulant at the mere notion of the cards being reshuffled and a fair deal being made," to use the words of one of the planters' organs. The same authority informs us "that

restriction is going to continue until its purpose has been completely achieved." Our British cousins were very deliberate in formulating the plan, and doubtless they will maintain it with the same tenacity on which they have always prided themselves in upholding other carefully considered government policies.

In well informed circles it is assumed that the planters for at least two years longer can readily hold out against any hand-to-mouth buying, and within that time they figure as a reasonable certainty that world trade will once more be on even keel, with rubber again in strong demand at much higher prices. Leaders counsel the smaller producers to disregard fleeting fluctuations and to remain steadfast to the scheme of "elastic" regulation of prices despite frequent discouragement, the faint-hearted being assured that they will be richly rewarded for their patience.

The leaders cannot be blamed for such advice, any more than for trying to link the planters in an invincible organization; but when it is claimed that American buyers are making deliberate effort to break the rubber market through manipulation, or are trying to tire out the planters by concertedly withholding orders for rubber, it is only fair to ask for proof of a charge known here to be wholly unwarranted. Americans have not been buying much crude stock of late simply because their supplies are ample for a comparatively quiet period. They are not taking part in an endurance contest.

As to what the next couple of years may bring forth,—well, we may have universal peace or the European cauldron may again boil over; at any rate American buyers, admittedly a dominant factor, seem willing to take a chance on the future. Full-fledged plantations under their patronage cannot, of course, be developed within that time, as Far East producers well realize, yet within that time a long stride may at least be taken toward the development of new sources of rubber, the more efficient utilization of waste rubber, or the more extensive employment of substitutes by the energetic leaders of the American rubber industry that will prove a decided deterrent to undue price inflation.

Hoover on Foreign Price Combinations

WHILE gratified that in the anti-trust laws Americans have the means, and that they exercise them, for stemming the pernicious activities of domestic combinations in restraint of trade and the natural ebb and flow of prices, Secretary Herbert Hoover of the Department of Commerce regrets that his countrymen are unable to keep within reasonable bounds foreign price combinations that during the past eighteen months have shown an increasing tendency to take unfair advantage of American consumers of essential materials obtainable only abroad. Among a dozen other such commodities he mentions rubber; and he implies that the prices of this and other raw materials were kept from mounting still higher only by the announcement that the American government would investigate foreign price manipulations. Prices were halted, and doubtless in many cases through fear of reprisals.

A mere cautious halting of foreign price boosting does not satisfy Mr. Hoover. He would have discrimination against American buyers made virtually impossible, preferably in an agreeable way, but through economic pressure if milder means should fail. Hence not only has he initiated an exhaustive inquiry into foreign price combinations, started a survey of potential American sources of raw material now imported, and begun to delve into synthetic and substitute possibilities, but he intimates that to insure American freedom from commercial dictation the government will not hesitate to enact suitable protective or retaliatory legislation that for American consumers will be tantamount to a new Declaration of Independence.

A Rain of Rubber

RUBBER manufacturers had scarcely adjusted themselves to a higher range of prices for rubber than cotton started to aviate. Now they have the problem, which they will solve in due time, of conforming the prices of their products to the higher range of cotton costs. But it is the possible scarcity of the staple that gives them even more concern than the soaring prices. Due chiefly to the ravages of the boll-weevil and "the crime of early planting," the American cotton crop has been steadily diminishing, and experts predict that if the destructive influences are not checked soon the early extinction of the great southern industry is inevitable. The Federal government has tried many measures to better conditions, but without much success. Lately it has been experimenting with airplanes dusting the cotton plants with arsenate of calcium, with fair results in selected cases.

But we must not abandon hope of rescuing King Cotton from his enemies. The pest may yet be "caoutchouced"; and incidentally the rubber plantations of Malaya may throw off all restrictions and save the cotton fields of Dixie. Dr. W. C. Geer, in "The Reign of Rubber," says that "rubber milk sprayed upon the hibernation homes of the weevil might entangle him and hinder his growth." Possibly; but when the vast acreage that would have to be "mist-ified" ith latex is considered it looks as if it would take a real "rain of ubber" to enmesh the myriads of insects that menace the crop. Perhaps Mr. Hopkinson, who has been doing some clever "stunts" in the latex-spraying line, might also give the problem prayerful consideration, and before long we ma be able to chronicle "Another New Use for Rubber."

"WE THEN THAT ARE STRONG OUGHT TO BEAR THE infirmities of the weak, and not to please ourselves." Romans, 15:1.

How Balloon Tires May Affect the Industry

Sudden Popularity of Low-Pressure Type Creates Temporary Uncertainty but Should Stimulate Sales and Increase Makers' and Dealers' Profits—Probable Influence on Car Design, Weight and Price

By H. P. Wilkin

DISCUSSION of the balloon tire has, up to the present, been confined mainly to technical considerations, such as the characteristics of the new type, the standardization of sizes and possible structural modifications of motor cars to adapt them more perfectly to the larger tire sections.

These are matters of undoubted importance but, since they are all certain to be dealt with and settled in due course, it is highly probable that the effect which the balloon tire seems likely to have on tire sales during the next year or two is of greater immediate import to the rubber industry.

The situation has in it some elements of surprise and uncertainty. No one can foresee clearly what the results of the introduction of the new type of tire will be. It seems apparent that its originators did not anticipate the sudden and marked influence that the bringing out of the low-pressure tires are already beginning to have.

An Innovation in Motoring

If present indications provide a safe basis for a forecast, a new mode in motoring is getting under way and will sweep the country by early summer. Fashions change quickly in the automobile field and every real improvement becomes almost universal within two or three years. By way of example, it is sufficient to refer to self-starters, electric lighting and cord tires.

The limited experience with balloon tires up to the present leads to the belief that they are the greatest improvement in tires that has been made since pneumatics were first put on automobiles. That is a large statement, when one considers the convenience that demountable rims have given, the greater flexibility of cord construction and the increased durability of present tires. Yet the increased comfort, speed, safety and freedom from puncture and blowout that the balloon tire affords are believed to justify the assertion. And if this is true, they will soon become the fashion and the car with standard oversize tires will be looked upon in another year or two as antiquated. Few car owners are going to be satisfied with high-pressure, small-section tires after having once ridden on balloons, or after hearing friends and acquaintances tell of their riding qualities, or even after observing the growing use of "balloons" and the smooth, easy rolling motion of cars fitted with them.

When even a moderate percentage of the 14,000,000 passenger car owners in America begin demanding the new type of tire almost simultaneously, they are bound to have a profound effect on the entire industry—on tire manufacturers, on automobile makers and on tire and car distributers and retail dealers.

Result of Public Demand

It was planned to launch the new tires gradually as optional equipment on new cars, with an extra charge. The fact that they were made for 20-inch wheels precluded their use on cars already in service without an expensive change of wheels and rims. This smaller wheel diameter is doubtless desirable in connection with the larger tire sections and is in line with the modern trends toward smaller wheel and tire diameters, low-hung bodies and standardization of a comparatively few wheel, rim and tire sizes.

If this plan could have been adhered to, it would have stimulated the demand for new cars and allowed a gradual change-over in wheels and tires during the course of two or three years. This would have enabled the manufacturers to gage their production with some certainty and gradually use up and replace factory equipment for the making of the present sizes. But, when one of the tire companies that depends entirely upon replacement business unexpectedly brought out and began selling balloon tires for present standard rims to replace practically all tire sizes now in use, from the 30 by 3½ clincher to the 35 by 5 straight-side, a new element of the utmost import was injected into the situation. Within two or three months it changed the whole outlook in the tire field. Actual use of these tires appears to disprove the opinion of other tire makers that balloon tires could not be made to replace standard tires successfully on the same rims. This opened the whole replacement field to the low-pressure tire, with the possibility of replacing the 60,000,000 tires now on cars in use. That is a year's production capacity of all the tire companies in the country.

Of course, there is not the least likelihood that the 14,000,000 car owners will discard their present tires and put on sets of balloons this year; they couldn't possibly get the new tires if they wanted to make the change. But there is the possibility—even the probability—that a large percentage will want the new type as soon as their present tires wear out. This prospect was too inviting to leave to one company, so others quickly started experimental work, and then production, along the same line.

Early Summer Vogue

Early summer, therefore, promises to see the new vogue of balloon tires getting into full swing. What its magnitude will be is impossible to forecast; it depends almost wholly on how much satisfaction these large-diameter balloon tires give. Questions of fender clearance, ease of steering, use of chains, durability and appearance are subordinate to riding comfort and style. Men, and women especially, will sacrifice a lot, if necessary, for these two things. While it is asserted that the balloon tire will give at least as great a mileage as the ordinary-size cord, many users would feel repaid in extra riding luxury and driving security even if there should be a reduction in durability of a fifth or a quarter.

Suppose it is assumed, rightly or wrongly, that balloon tires on 23, 24 or 25-inch wheels do not give quite the same driving effect and appearance as balloon tires on 20 or 21-inch wheels; will that deter a man from using them until he buys a new car? Or will he try them on his present car to get what advantages he can from them and to enable him to decide from the experience whether to specify the smaller wheels and balloon tires next year or the year after when he invests in a new model? The answers seem obvious.

Balloons Featured at New York Show

A survey of the recent New York automobile show revealed that one or more models in practically every car space was equipped with balloon tires—on 20-inch wheels—and it was noteworthy that by contrast with them the standard tires appeared to the eye disproportionally small for the cars. The balloon tires seemed more in harmony with the size of the machines and the impression of weight that they conveyed. Usually, so great a change in accustomed lines seems odd at first, but even on first sight the new tires give the impression of being the correct thing.

The public, then, will have no objection to them on the score of appearance. And the national shows, of course, launch the motor fashions. Doubtless, the local shows that follow in February and March throughout the country will see some new cars fitted with balloon tires on standard wheels of larger diameter and the public will have a chance to pass collective judgment on the question of their appearance, too.

Effect on Tire Market

Now, if we forego a discussion of the merits and possible demerits of low-pressure tires for standard wheels, and grant their practicability, it must be granted also that the situation possesses enormous potentialities. The effect on the tire market may be prodigious. In the first place, instead of buying a single replacement tire at a time, the motorist will buy a set of four or five balloons—at the least he must buy two casings and two tubes, and until the new tires are widely distributed, most car owners will not feel safe without a spare casing and tube. This means largely increased sales by dealers. Then, the new tires being somewhat higher priced than the standard sizes and the demand being very active, the dealers will doubtless have enough business acumen to charge resale prices that will net them a fair profit. So, for the next year or two at least the situation in the retail field should be improved materially. Just such a development was needed to put it on a better footing.

It remains to be seen what will be done with used tires that are replaced. Possibly a good many motorists will at first merely put a pair of balloons on the rear wheels and use up their present tires on the front wheels, finally replacing them also with balloons. However, the tendency is strongly toward equipping with low-pressure tires all around at the start. If this should prove to be general, there is a prospect that there may develop a used tire problem just as there is a used car problem. Whether the dealer will take them in trade as partial payment for balloons will depend on the amount of competition that develops and the strength or weakness of the individual dealer. The tire companies will hardly be so shortsighted as to do so. Dealers have found a rather ready market for the last two or three years for used tires at greatly reduced prices, but this can become surfeited very quickly. Some of the used tires that are in good condition will be fitted to used cars when they are furnished up for resale. Still, there promises to be a freer scrapping of worn tires during the next few years than for several years past. If that is the case, there will be a larger total sale of new tires than has been anticipated and the industry will have another era of prosperity.

Meantime, the makers are at sea as to probable demand for standard sizes. If balloon tires suddenly become a fad and the big companies put out this type for replacement on the cars now in service, they run the risk of overproduction of present standard sizes unless inventories are kept down to the minimum and the trend of demand is watched narrowly. It will hardly be safe to expand production against spring sales in the customary volume. Also, considerable investment in new molds and mandrels will be required, while many of the old molds and perhaps other factory equipment may soon be rendered obsolescent.

Influence on Motor Car Industry

Whatever the immediate effects on the tire industry may be, a new impetus will be given ultimately to the whole motor car business by the advent of balloon tires, assuming that they are an undoubted success. The additional cushioning that the low-pressure gives the car will make it possible to redesign the whole chassis and perhaps reduce the weight of some cars by a fifth or more. Such a saving in materials should have a tendency further to lower prices. It may be found that four-wheel brakes have no particular advantages when balloon tires are used, because of the better traction they afford, with consequent increased braking efficiency and reduction of the tendency to skid. Also, the use of chains may be greatly curtailed. On the other hand, snubbers or shock absorbers may become almost universal if balloon tires generally accentuate the vertical oscillations of the body.

Then there is a possibility that the better utilization of power by the balloon tires and the reduction of car weight will permit of smaller engines, with a resultant saving in fuel consumption. This all tends toward a lowering of the cost of motoring and a pushing of the much-discussed car saturation point further into the future.

Looked at broadly, therefore, the coming of the balloon tire seems likely to influence the entire automobile and tire industry beneficially for the public and, for a period at least, for the tire industry. What the effect will be in the long run for car and tire makers must remain in doubt. If the tires give longer service and increase the life of cars, consumption of both may decline. That bridge, however, is several years ahead.

NEW ENGLAND SOUTHERN MILLS

A merger representing leading interests and of importance to the textile and rubber industries occurred through the forming of a Massachusetts corporation, known as the New England Southern Mills, an outgrowth of the International Cotton Mills. To the six mills previously controlled by the last-mentioned organization have been recently added the Pelzer, Tucapau, and Stark Mills, the latter manufacturing tire fabric.

Operations will be carried forward under the direction of Lockwood, Green & Co., Inc., while the selling agents will be Lawrence & Co., the latter acting in a similar capacity for other well-known textile concerns. An issue of $4,000,000 of New England Southern Mills 7-per cent secured gold notes was recently offered by Lee, Higginson & Co., Boston bankers. The magnitude of the proposed new industry is indicated by the tabulation following:

STATISTICAL OUTLINE OF NEW ENGLAND SOUTHERN MILLS

Mill	Location	Principal Product	Spindles	Looms	Operatives	Annual Production Pounds
Southern Mills—						
Pelzer Manufacturing Co.	Pelzer, S. C.	Sheetings, shirtings, print cloths, drills, bed spreads	136,000	2,600	1,000	10,800,000
Tucapau Mills	Tucapau, S. C.	Print cloths, crash toweling	72,000	2,100	535	4,822,000
Stark Mills	Hogansville, Ga.	Tire fabric	35,000	121	340	5,000,000
Hogansville Mills	Hogansville, Ga.	Hose and belting duck	11,200	84	234	4,600,000
La Grange Mills	La Grange, Ga.	Hose and belting duck	10,000	120	360	3,000,000
Total Southern			264,200	5,025	2,469	28,222,000
New England Mills—						
Lisbon Mills	Lisbon, Me.	Carded and combed yarns	33,000	.....	186	2,000,000
Lowell Mills	Lowell, Mass.	Wide sheetings	35,000	756	300	3,200,000
Total New England			68,000	756	486	5,200,000
Canadian Mills—						
Imperial Cotton Co., Ltd.	Hamilton, Ont.	Hose and belting duck and paper felts	11,200	119	298	3,000,000
Cosmos Cotton Co., Ltd.	Yarmouth, N. S.	Hose and belting duck and paper felts	19,000	186	480	5,400,000
Total Canadian			30,200	305	778	8,400,000
Total all Mills			362,400	6,086	3,733	41,822,000

The Development of Cotton Reinforced Rubber

Evolution of Reinforced Rubber—The Cord Tire and the Fiber Sole—Reinforced Rubber in Relation to Rubber Production—Possibilities and Advantages—Extent of the Market—Rubber Floors to Lead Pavements

By James H. Stedman [1]

THE development of the modern rubber industry dates from the discovery of vulcanization by Goodyear. His invention became its foundation. Scarcely less important than sulphur in the compound, however, has been the use of cotton fabric of various sorts as a support and strengthener of rubber. Dr. Geer in his interesting book, "The Reign of Rubber," speaks of cotton fabric as "the backbone of rubber articles." Certainly pneumatic tires, rubber hose, belting, packing and clothing would hardly be possible without it, and it plays an important part in rubber footwear.

Cord Tire the Forerunner

A third great development of the art has recently come to the fore, namely the reinforcement of rubber. Cotton fabric remained almost stationary in its relation to the rubber art until the development of the cord tire, in which the individual cord or strand of cotton treated with rubber was shown to impart a greater strength, resilience and length of life to the tire than woven fabric. In other words, the individual cord or thread was coming to be considered as against the woven sheeting or canvas. The principle of intimate integral reinforcement was beginning its development.

Evolution of the Idea

The natural progress in development is perhaps toward extremes, and so the cotton reinforcement thought was carried from the fabric insertion through the cord or strand idea to the minute shred or tissue, which cotton yarn becomes when it is closely refined with rubber. Instead of fabric impregnated and frictioned,

Dining Room Floored With Rubber

in which the fabric is in the main the holding portion, is the reinforced product in which both cotton and rubber are so entirely a unit as to make it impossible to say where one begins and the other ends.

[1]President, Stedman Products Co., South Braintree, Massachusetts.

Fiber Sole the First Application

The first application of the minute shred as a reinforcement of rubber to any considerable extent was in the so-called fiber sole, which came into general use but a few years ago. For several years these soles tended seriously to displace leather to the extent that rubber heels have displaced leather heels, but owing to the present vogue of crêpe soles the fiber sole has had but little sale in the last two years. The underlying principle in the manufacture of fiber soles is absolutely sound, however, and is recognized by rubber technicians as such. The reinforced rubber or fiber sole gave far greater wear than the compounded sole, and is tougher where the stitches penetrate.

Rubber Floor in Hospital Corridor

The Relation to Rubber Production

The success of the fiber sole at once suggested the adaptation of the cotton reinforcement principle to other rubber goods. Its possibilities challenged the imagination and were soon seen to be far reaching. Crude rubber production had at last exceeded demand, new uses were needed to consume the surplus, and reinforced rubber seemed to offer a means of utilizing the increasing production of future years.

To double or treble last year's output of crude rubber of approximately 400,000 tons requires but comparatively few years of time, and a sufficiently stable market to warrant the investment necessary for such an extension. In other words, the world can produce at probably 35 cents per pound, at a profit to the plantation and to the merchant, a million tons of rubber annually in a relatively short time.

Rubber Floors Offer Great Possibilities

What is to be the market for this vast possible increase? In what way can rubber still further be used to benefit mankind in easing his progress through life? Just as the car spring helped to eliminate the jolt of pre-Pullman days, so the solid tire rendered a buggy ride a treat, the rubber heel made life's walk easier, and

the pneumatic tire became a help not alone to comfort but to speed. If, in all these ways, travel has become easier because the vehicle and the individual were rubber shod, the natural sequence would obviously be to rubber cover the underlying surface —floors and roads.

In this problem consideration naturally centers on two things: Cost and durability. In which field can the greatest cost properly be absorbed would seem to be the first question. The answer, without doubt is: Floors, for the floor is primarily a part of our daily life—as much a part of it as chairs or beds or food. We are accustomed to thinking of floors in terms of wood and carpet, or of marble and Oriental rugs, where first cost is incidental to comfort and artistic effect, but the advent of the reinforced rubber floor seems to be at hand.

It may appeal to some rubber minds as a rather extravagant statement, but an experience of many years in the manufacture and testing of various types of rubber floors encourages the belief that extending and improving the principle of cotton fiber reinforcement of rubber, as first practiced in the so-called fiber sole,

Rubber Floored Operating Room

is a great step in the development of the rubber industry, and one capable of absorbing a tremendous volume of crude rubber and valuable rubber and cotton by-products.

Advantages of Rubber Flooring

The development of less than three years in the production of multiple colored, reinforced rubber flooring, in which the cotton fiber has been reduced to the merest tissue and vulcanized under high pressure, has convinced many persons as to its desirability in many different classes of buildings. Its supplementary use for wainscoting, bases, surbases, stair treads, and other purposes is also being developed satisfactorily.

Reinforced rubber flooring combines the ideal features in all types of flooring with none of the disadvantages. It has no drawback except that the first cost is somewhat higher than other types of floor which are necessarily temporary in character. Reinforced rubber properly applied will last as long as the house. This country will be using reinforced rubber flooring at an annual rate far in excess of 100,000,000 square feet within ten years.

Extent of the Rubber Flooring Market

To estimate specifically the extent of the reinforced rubber flooring market, let us take one field, the hospital. At the beginning of this year there were, roughly speaking, some 700,000 hospital beds in this country and Canada. Taken on a unit basis each bed should have 500 square feet of floor space, or a total of 700,000 multiplied by 500, which equals 350,000,000 square feet of floor space. Taking out for space covered by walls and rooms in which rubber is not indicated, let us say one-fourth, we have the amazing total of more than 250,000,000 square feet of floors which need attention certainly at the rate of 10 per cent per year, or 25,000,000 square feet (which in ¼-inch thickness would be roughly 60,000,000 pounds, this for replacement only.) As the hospital programs are calling for about 70,000 new beds per year, we can again see the possible flooring needs of an amount equal to that required for replacement, placing the hospital field as a potential market for 50,000,000 square feet per year, equal to 120,000,000 pounds.

Let us take the office building, running in size up to 500,000 square feet, and sometimes more, in which both corridors and offices could have no better covering than reinforced rubber applied directly to the concrete slab smoothly finished. Multiply one such building, or its equal, in several smaller buildings, in let us say one hundred cities, and we have 500,000 multiplied by 100, or 50,000,000 square feet of office building floors.

The bank, the church, fraternal temples and clubs, the steamship, the department store, hotels and restaurants, and last but not least the American home, are all immediate prospects for rubber flooring of the right type in amazing quantities. No house construction today above the $7,000 mark can afford to be without rubber in the baths and kitchen, and by all means in the halls. If money is available it should cover the dining room, living room, sun room and billiard room. It is also ideal in bedrooms. In fact, there is no place in the home where rubber is not a desirable flooring. If we were to multiply five million American homes by the area of a bathroom, kitchen and hallways, which would approximate a minimum of 300 square feet, we would find a total of 1,500,000,000 square feet (roughly 35,000 acres), or 3,750,000,000 pounds, which would mean an installed price of about $1,500,000,000.

Rubber Floors to Lead Pavements

While rubber will probably enter into highway construction in the near future in definitely segregated areas, such as courtyards of hospitals and hotels, or on streets in banking districts, etc., the indoor use of rubber for floors, wainscoting and general wall treatment will undoubtedly far outweigh in importance and value its outdoor use for many years to come.

To sum up the situation briefly, the world needs quiet, comfort and durability, and, where possible, beauty, under foot. Rubber reinforced with cotton fiber is the answer.

REPORT OF RIMS INSPECTED AND APPROVED DURING DECEMBER, 1923

Size	Number	Per Cent
26 x 3	3,700	0.2
28 x 3	4,780	0.3
29 x 3 S. S.	645	0.0
30 x 3	107,738	6.1
27 x 3½ C. S.	101	0.0
28 x 3½ C. S.	13,977	0.8
30 x 3½ Cl.	886,945	50.4
30 x 3½ S. S.	277,809	15.8
32 x 3½	1,246	0.0
28 x 4	7,654	0.5
31 x 4 Cl.	156,839	8.9
31 x 4 S. S.	8,016	0.5
32 x 4	163,523	9.3
33 x 4	5,396	0.3
34 x 4	180	0.0
29 x 4½	4,776	0.3
30 x 4½	433	0.0
31 x 4½	25	0.0
32 x 4½	73,978	4.3
34 x 4½	32,301	1.8
36 x 4½	308	0.0
30 x 5	1,066	0.1
31 x 5	23	0.0
34 x 5	6,325	0.4
32 x 6	236	0.0
36 x 6	540	0.0
34 x 7	402	0.0
38 x [illegible]	402	0.0
36 x [illegible]	687	0.0
Millimeters	182	0.0
Totals	1,760,233	100.0

Tire and Rim Association.

Rubber in the Ceramic Industry

Rubber Possibilities in Sliphouse Machinery—How Rubber Linings and Insulators in Blungers, Agitators, Filter Press Pumps and Pebble Mills Aid Ceramists in Eliminating Iron and Lime from Clays

By Edw. W. Lawler

Iron the Bane of the Ceramist

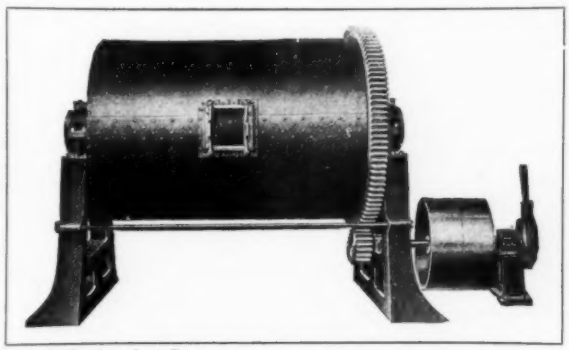
THE ceramist, like all other mortals, has certain definite aims in life, but before he can attain them he has certain definite things to overcome. In grinding glazes, enamels, colors, etc., the ceramist must constantly fight contamination from iron, lime and other materials in mills, mixers, pumps and other apparatus. His greatest enemy is iron, yet while he fights iron in front it sneaks in behind and his ware shows it in little black specks.

A maker of porcelain teeth once told the writer that a speck of iron never appeared in a tooth until after it was completed and then it was "right up in the front row."

Rubber Possibilities in the Clay Industry

While iron may not be completely eliminated from the ceramist's materials, much of it can be removed by the use of rubber. The number of potteries in the United States and Canada is growing and a good business is developing for the rubber manufacturer if he can see and meet it, especially with the high tension porcelain manufacturer to whom iron spells ruin and for whom rubber might be salvation or part way to it.

But the ceramist does not read THE INDIA RUBBER WORLD, although he should. Therefore the rubber man must tell him, making sure, however, that the man he sends knows what he is talking about. Potters are not easy to convince, and an ordinary rubber goods salesman, however good, might fall down hard.



Abbe Engineering Co.

Pebble Mill

Sliphouse Machines and What They Do

A brief survey of the machines used in the modern sliphouse and what they do suggests several promising uses of rubber to eliminate iron and lime from potter's clays.

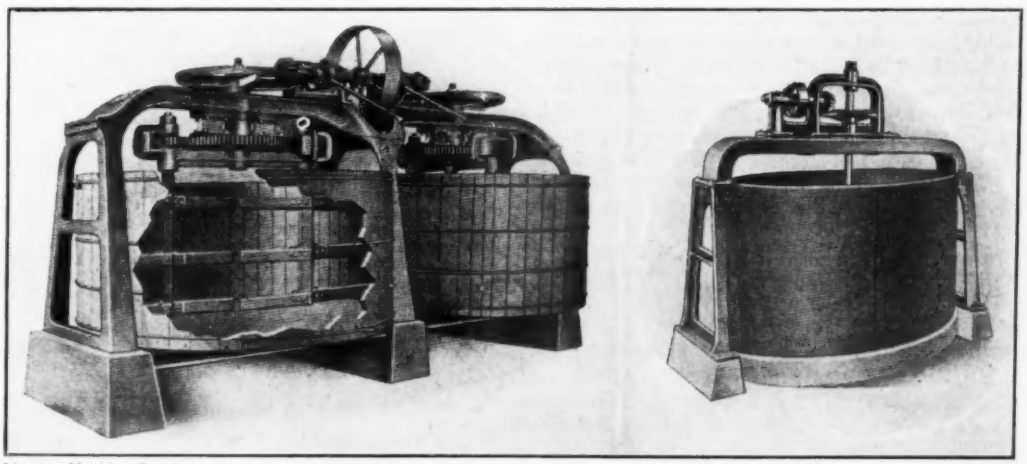
Rubber in Blungers and Agitators

The clay slip, which consists of various potter's clays reduced to a semi-fluid condition with water, must first be mixed in a blunger. This consists of two large tanks in which wooden paddles are operated by planetary gearing. The steel shaft on which the paddles are mounted and the iron bolts which hold the paddle clamps in place are exposed to the clay slip. Both might be covered with rubber to insulate them from the abrasive action of the clay and the corrosive action of the water, and the inside of the tanks could also be lined with it to save wear.

From the blunger the mixed clay slip is run into an agitator, which is a storage tank or cement cistern having mixer blades similar to those of the blunger. Obviously rubber might with benefit be applied to the agitator the same as to the blunger. From the agitator the clay slip is pumped to a filter press with wooden plates and canvas that separates the water from the clay, the cake being removed.

Filter Press Pump Linings of Rubber

A filter press pump is generally considered the most troublesome machine in the sliphouse. The old fashioned slip pump works in the same manner as a water pump. As the slip comes in contact with the working parts and is of a gritty nature, it grinds and cuts both piston and valves continuously and loads itself with iron which shows up in specks on the finished ware. Lining



Mueller Machine Co., Inc.

Blunger **Agitator**

the pump with rubber is another step in eliminating iron and wear.

Rubber in Pug-Mills Questionable

The clay, after filter pressing, is next machined and tempered by a pug-mill. A common form consists of a hollow iron cylinder, usually set upright, with a revolving shaft in the line of its axis, carrying several knives spirally arranged around the shaft, with their edges somewhat depressed. The clay is thrown in at the top of the cylinder, cut and kneaded by the knives in its downward progress, and finally forced out through a hole in the bottom of the cylinder. A pug-mill has the same action as a meat chopper or grinder, and it is questionable whether rubber could be applied to it on account of the great twisting and pressure.

Pebble Mill Possibilities

Turning now to the preparation of the ingredients of the clay slip, they must be ground in pebble mills before being blunged. The pebble mill presents much the same conditions as do the ball and tube mills used in the mining and Portland cement industries, and which have already been described in THE INDIA RUBBER WORLD,[1] except that the iron at the manhole and the lime in the cement which holds the silex lining in place present added sources of trouble for the ceramist.

Relative Merits of Rubber and Silex Linings

Rubber pebble mill linings are therefore a great boon to the ceramist. To the proved advantages of reduced cost, weight, driving power and time saved in shut-downs, which characterize rubber linings in ball and tube mills, may be added elimination of iron and lime from clay slip so far as the pebble mill operation is concerned.

Before an old silex lining can be replaced it must be removed. This is such a nasty and difficult job that it is usually put off as long as possible, with the result that a hole sometimes wears through the shell before it is noticed. Relining such a mill in its bearings is a particularly hard job, as the silex bricks must be set in cement and held against a flat head. Then after the cement has set, the surplus cement must be thoroughly ground off by running the mill.

It takes one man at least eight hours to dig a worn lining from a 6 by 8-foot pebble mill, and at least 32 hours—four days—to reline it. Another two days will be required for the cement to set and one more day to grind off the surplus cement, making a total of eight days lost time and a cost of approximately $300.

A rubber lining for a pebble mill would be ⅝-inch thick, and as only approximately 252 square feet would be required the saving in weight would be great. The operator of a mill would appreciate the difference between lifting a cover lined with rubber weighing about 20 pounds and one lined with stone weighing 150 pounds. Moreover, the lining would never have to be completely renewed, for strips of rubber could be inserted as wear developed. Much power and wear would be saved owing to the lighter weight of the mill.

[1] "Rubber Lined Ball Mills," THE INDIA RUBBER WORLD, August 1, 1923, 697-8. "Rubber Lined Ball Mills in Mining and Cement Industries," THE INDIA RUBBER WORLD, December 1, 1923, 153-4.

PURCHASING POWER OF "TIRE DOLLAR"

That the dollar in 1924 buys 123 cents worth of tires as compared with the 100 cents of 1913 days is the argument set forth in a recent bulletin issued by the National Automobile Chamber of Commerce. The pre-war dollar is stated to be worth only 61 cents today in the general cost of living, while a dollar will buy more in motor products than in most other lines. Added to that, the current models of motor vehicles and the present type of tires are far better than ten years ago even at the lower prices prevailing today. The astonishing growth of the automobile industry, and the accompanying development of tire production, is indicated by the fact that the output of motor vehicles during the year 1923 rose to 4,000,000, or 50 per cent ahead of any preceding year.

Rubber Linings for Tin Dredge Launders[1]

On July 17 I laid down a mat of crude crêpe rubber in an extension launder on one of the dredges belonging to Kamunting Tin Dredging, Ltd. This launder is T-shaped; the head extends across the full width of the boxes, and the trunk, 6 inches wide, shoots the sand 18 inches beyond the end of the boxes. The wear here is very great, as the tailing is fine, sharp sand containing quite an amount of corundum. Usually such launders are lined with granite blocks, ordinary steel plate, or manganese slabs. So far there is no sign of wear of the rubber. About 60,000 cubic yards travel through this launder in a month.

The lightness of the lining in this particular position is a great advantage, as, with the leverage, heavy material would greatly affect the trim of the dredge.

The following figures are of interest in connection with this mat in comparison with steel of similar thickness:

	Rubber	Steel
Thickness, in.	7/8	1/4
Total area, sq. ft.	236	236
Total weight, lb.	756	8,260
Weight per foot, lb.	3.2	35
Cost per lb., cents, Straits	.50	.07
Total cost	$378.00	$578.20
Cost per square foot	$1.60	$2.45

The installation cost of the steel and wastage is not taken into account, but it would be considerable. The mat was made in one piece at a plantation near by, the management of which has made a specialty of crude crêpe products. The cost per pound, 50 cents, Straits, is probably startling to those who purchase vulcanized rubber only.

We are using crêpe rubber at all places on the dredges where abrasion takes place through running sand, such as the drop chute, well lining and stone chute, return drip pan on ladder, and all conduit launders. Probably experiments will be tried on rollers and screen.

We have every reason to expect the crude rubber to last longer than steel, but the experiments are not yet conclusive.

One would expect where abrasion is combined with heavy stress, such as in tube or ball mills and ladder rollers, that the vulcanized rubber would have a longer life than crude. This, however, can only be settled by experiments. It is said that crêpe has been used with success for lining stamp batteries.

Plantations have had a bad time through over-production, and are now allowed to sell for export only 60 per cent of their crop, but may sell locally any quantity. The price mentioned is the ruling local price for crêpe, nothing being charged for making up the mat, but the estate supplying was of course only too glad to be able to get rid of any of its crop above its allowance.

Under normal market conditions it obviously would not pay an estate to put crêpe up in this form, as the work is heavy on rollers, and the labor in cutting and cementing strips is a fairly costly item. The mat referred to above was made in strips of 8 inches by 2 feet. A premium of 10 cents a pound on ruling prices would probably cover the extra costs incurred and also give a reasonable profit.

[1] By Roy L. Naish, Perak F. M. S.—*Engineering and Mining Journal-Press.*

FOREIGN FAIRS

The Spring Fair at Lyons, which is to be held from March 3 to March 16, 1924, gives promise of being a particularly interesting event. Already 1,503 firms are said to have announced their intention of taking part in it, as against 790 at the previous fair, and numbers of foreign buyers are expected to attend.

One of the most important European trade fairs, the Fifth Brussels (International) Commercial Fair, is scheduled for April 1-16, 1924. This fair is doubly important as it will be held concurrently with the Sixth International Rubber Exhibition.

Rubber Plywood Rigid and Non-Rigid

Plywood and Veneer Defined—Properties of Plywood—Automotive Tests—Consuta Sewn Plywood—Plymax—Plywood Rubber Packing Cases.

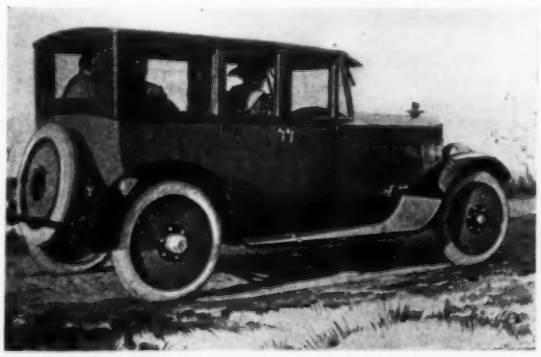
THE advent of the Seiberling flexible rubber wheel draws attention to what has already been done in cementing plies of wood together with rubber solution or with thin rubber sheets and pressing and vulcanizing into a homogeneous whole. In the past most of the products have been rigid, but using various compounds, and curing soft, semi-hard or hard, gives a wide range of product.

That the use of rubber instead of waterproof glue is likely is more than a careless surmise. Indeed plywood of rubber and wood promises to be ere long a large item in rubber manufacture.

Although popularly regarded as alike, plywood and veneer are quite dissimilar, according to the manufacturers. The latter apply the term "veneer" to the separate thin sheets of wood cut on various types of veneer machines, while "plywood" refers to the combination of a number of sheets glued together so that the grain of one ply, usually, crosses that of the adjacent plies at 90 degrees. The uses of plywood may be put into two general classes, the one in which finish or appearance is of primary importance and strength is secondary, and the other in which the order of such requirements is reversed. Nearly all plywood in furniture belongs to the first class, and has long been known as veneer, veneer panel, and plywood.

Plywood in Four Large Industries

Esteeming the utility of plywood more than appearance—although the latter is by no means scorned—four large industries now require large quantities of plywood as a structural or engineering material: namely, automobile, airplane, street car, and shipbuilding. For automobiles the chief products are disk wheels, door linings, dashboards, window frames, instrument boards, and cab tops, usually of 3-layer plywood. Many airplane fuselages are made almost entirely of plywood, section of the bulkheads often having as many as seventeen plies. Roofs and panels of many



Automobile With Plywood Body

types of street cars are made of plywood, and plywood is used to an increasing extent in the body making of launches and other light water craft, and for panels and partitions in shipbuilding generally. The war gave a great impetus to the development of plywood for airplane manufacture; and so efficacious were the new water-resistant glues employed that it was quite easy to meet the government's specifications requiring all plywood intended for use in the manufacture of airplanes to withstand either eight hours of boiling or ten days of soaking in water without separation of the plies.

Properties of Plywood

Tests made by United States government engineers have shown that the tensile strength of wood parallel to the grain, as well as its modulus of elasticity in this direction, is from 18 to 20 times as high as the corresponding property at right angles to the grain. When the wood fibers are cross-banded, as in plywood, the tensile strength in one direction is slightly reduced, but in the direction at right angles to this it is greatly increased.

Motor Boat Built of Consuta Plywood

The sheer strength of plywood is consequently also greater than that of ordinary wood parallel to the grain. The crossing of the fibers increases the tensile strength across the face grain to such an extent that it is very difficult to split plywood. Shrinkage is, too, a negligible factor in plywood owing to the peculiar restraining influence of the inter-crossed fibers.

While wood ordinarily may, through steaming or boiling in water, be readily bent lengthwise around a comparatively short arc, and may be set by drying the wood in the bent position, a similar bend cannot be made in this way across the grain of the wood. In plywood, however, this limitation does not obtain as a large percentage of the fibers are at right angles to the face grain. Therefore, it is moldable in double curvature.

Summed up, the results of tests of 3-ply plywood show that on the average the bending strength in the parallel direction is about 4.5 times as great as across the face grain, when all plies in a triply laminated panel are of the same species and thickness. In general the stiffness of 3-ply plywood, all of the same species and thickness, parallel to the face grain is about the same as that of ordinary wood. The modulus of elasticity across the face grain is, however, considerably less than in the parallel direction. The latter may be from 9 to 15 times as great as the former. Increasing the number of plies tends to make the strength properties across the face grain equal to those parallel to the face grain, and resistance to splitting is greatly increased.

In shear tests, while ordinary wood fails suddenly and completely, plywood will support a very heavy load in shear after initial failure, and rupture occurs only after considerable work has been done and the plywood is badly distorted. Maximum shear strength appears to lie between 40 and 70 degrees to the face grain in 3-ply plywood, and within that range shear strength may be even more than twice that parallel to or at right angles to the face grain.

Automotive Tests of Plywood

Automotive engineers have found that 3-ply plywood body panels for bodies have even greater strength per unit of weight

than either sheet steel or aluminum, the ratio being: Plywood, 10,800 pounds per square inch; rolled aluminum, 7,200, and mild steel, 7,650. With plywood for body material greater rigidity is said to be obtained, a greater reduction in twisting or racking of the car than if sheet steel or aluminum be used. A door of plywood closes without a noisy slam, sound vibrations are deadened, and minor road shocks damped out.

Plywood is much stiffer than sheet metal, deflecting only about 1/13 as far as aluminum, and about 1/100 as far as sheet steel. Plywood is more resistant to blows. Tests for elastic energy have shown that the impact which will cause a plywood panel to receive a permanent dent must be seven or eight times as great as the blow which will severely dent sheet steel or aluminum.

"Consuta" Sewn Plywood

In ordinary plywood the crossing of the grain renders the product very strong, but a laminated ligneous material which is claimed to be very much superior to the ordinary plywood article is "Consuta," a product of S. E. Saunders, Ltd., boat builders, Isle of Wight, England. It consists of thin layers of wood cemented together with waterproof material and then lock-stitch sewn in parallel rows about 1¼ inches apart, the several operations imparting to it remarkable strength, rigidity and resilience, coupled with exceptional lightness and resistance to moisture. It is made from 1/16 to ⅝ inch thick, and has been used for articles as diverse as lifeboats, airships, driving pulleys, paneling, and suitcases. Its use has also been suggested for automobile disk wheels.

Plymax

A new sort of laminated wood material under the registered name of "Plymax" was put on the market early in 1923 by Venesta, Ltd., London, England. It consists of 3-ply or multiple plywood, to one or both surfaces of which is cemented by a chemical process a sheet of steel coated with either lead or zinc. The addition of such metal sheets converts ordinary plywood into what is virtually a new substance, giving the plywood a protective and fireproof surface and augmenting the structural properties.

Plymax is made from ⅛ to ¼-inch thick, the steel sheets being from 30 to 33 gage. When coated with lead the steel sheets weigh about 0.32-pound to the square foot, or 0.49-pound if coated with zinc. Plymax of ⅛-inch, in which the steel sheets are lead-coated on both sides, weighs 0.975-pound per square foot, while the ¾-inch material with two sheets doubly-coated with zinc weighs 2.94 pounds per square foot.

The makers claim that, weight for weight, Plymax is at least 80 times as stiff as mild steel. The material is used for disk wheels, partitions, vehicle bodies, and other purposes.

Plywood Rubber Packing Cases

The rubber trade has for many years been quite familiar with the advantages of plywood, crude rubber being shipped extensively in "Venesta" cases made of such material. Sumatra alone requires fully 400,000 cases annually, and other rubber raising regions about as much more. A case largely used in Sumatra has been of reinforced 3-ply wood veneer made in Russia. Recently the Dutch have been making plywood cases, using veneers from native lumber; and the Japanese have long been supplying rubber exporters with "Momi" cases, also of plywood.

Plywood Resilient Bats

That articles made of plywood can have remarkable springiness, strength and durability was demonstrated several years ago by the United States Forest Service at its laboratory, Madison, Wisconsin, when it originated and perfected a baseball bat of short pieces of ash (the wood preferred above all others for bats) which would otherwise be wasted. The pieces were fitted and joined together with the same kind of waterproof glue used in making airplane propellers; and tests showed that the finished laminated article was as satisfactory as a bat of the one-piece variety in making home runs. The diminishing supply of native ash impelled the government research workers to devise, if not some material as a substitute for this valuable wood, at least some means for conserving the supply as by piecing together short sections.

"Woodisk" Automobile Wheel

The Smith "Woodisk" automobile wheel manufactured by George W. Smith & Co., Inc., Philadelphia, Pa., appeared early in 1921. It is made of laminated or plywood, the grain of each layer being laid at a different angle to that opposing it. Advantages claimed for it are that it is much stronger than similar disk wheels and particularly resistant to side stress, a common cause of skidding.

WINDOW DISPLAY FEATURES RUBBER INSULATORS

Rubber insulators, as installed on passenger cars and commercial vehicles, are gradually replacing the conventional steel shackle spring arrangement. Automotive engineers are finding that, with the spring ends resting on eight blocks of live rubber, a car is rendered practically noiseless, and that most of the shocks are eliminated.

The United States Rubber Co., 1790 Broadway, New York, N. Y., which is said to have been the first manufacturer to develop

U. S. Rubber Co.'s Display of Rubber Shackles

successful rubber shackles and to make the best records with them, has recently arranged a clever window display where this particular type of equipment is well featured. Several rubber insulators, which have given remarkably good service to the Mack Truck Co. and the Yellow Cab Co. are shown, together with a seismograph, its chart representing comparisons of riding qualities. That rubber shackles give better service and are to be preferred to metal ones is evident from a glance at this chart. Occupying a prominent position in the window is a large poster, representing a loaded truck making its way, apparently with ease, through the snow. Undoubtedly the truck has been equipped with rubber shackles.

S. A. E. ELECTS OFFICERS

New officers of the Society of Automotive Engineers have been elected for the ensuing year as follows: President, H. M. Crane; first vice president, E. A. Johnston; second vice presidents, W. R. Strickland, representing motor car engineering; J. F. M. Patitz, tractor engineering; H. L. Pope, aviation engineering; W. C. Ware, marine engineering, and T. B. Fordham, stationary internal combustion engineering; treasurer, C. B. Whittlesey; councillors for the term 1924 and 1925, J. H. Hunt, A. K. Brumbaugh and M. P. Rumney.

Treated Liners for Adhesive Rubber Stocks[1]

Untreated and Treated Liners Compared—Advantages of Non-Sticking Liners—Methods of Application in Factory Operations

ALL uncured calendered rubber stocks require protection in process by being wrapped in cotton liners. The yardage of fabric devoted to this purpose is large even in factories of moderate size. At current cotton prices the outlay for unsatisfactory short-lived untreated liners is rapidly becoming burdensome.

Untreated Liners

The use of plain sheeting for liners has always been the rule in rubber factories whether for separating stocks in batches, in rolls of calendered sheets, or in books of cut plies and pieces.

In addition to the inevitable expense occasioned by wear and tear, the use of plain liners in adhesive stocks frequently causes a serious loss when calendered stocks stick tightly in the liner and cannot be released. This loss involves the liner, rubber and labor and is apt to assume very serious proportions in factories using pure gum stocks, soft sheet stocks and soft adhesive frictions. Liner losses have heretofore been accepted as inevitable until the development of the chemically treated non-adhesive liner, which as now perfected effectually eliminates liner and stock losses.

Treated Liners

The process of making treated liners consists in impregnating with a chemical solution clean unused selvaged cotton fabrics ranging from light sheetings to heavy ducks in any practical width and length. This solution increases the tensile strength of materials treated, and resists water, gasoline, oil, grease, etc. Thus prepared, a liner with ordinary care will outlast several plain liners, due to its non-sticking quality, increased tensile strength and lasting flexibility.

Advantages of Treated Liners

Distinct advantages from the use of treated liners include economies in manufacture and benefits to stocks. Under the

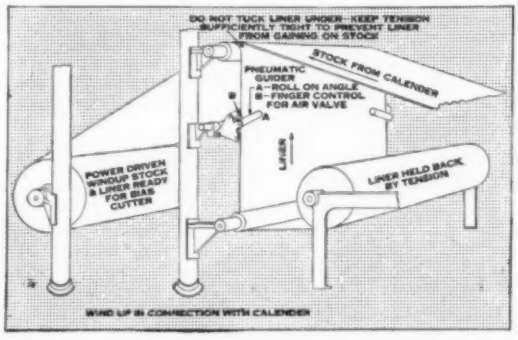

DO NOT TUCK LINER UNDER—KEEP TENSION SUFFICIENTLY TIGHT TO PREVENT LINER FROM GAINING ON STOCK
STOCK FROM CALENDER
PNEUMATIC GUIDER
A—ROLL ON ANGLE
B—FINGER CONTROL FOR AIR VALVE
POWER DRIVEN WINDUP STOCK & LINER READY FOR BIAS CUTTER
LINER
LINER HELD BACK BY TENSION
WIND UP IN CONNECTION WITH CALENDER

Fig. 1. Wind-up of Liner and Calendered Fabric

former may be enumerated: Saving in labor and power; horizontal storage of stocks is permitted; stock and liner can be separated conveniently, and brushing and cleaning of liners avoided.

The benefits to stocks are found in the complete elimination of lint and ravelings; exclusion of air, moisture and sunlight; prevention of oxidation, mold and bloom; preservation of freshness and tackiness; more closely maintained stock gages; and broadening of latitude in compounding, as for example in the use of softeners, etc.

How to Use Treated Liners

A clear idea of the practical possibilities and methods of using may be gained from the following suggestions and illustrations.

There should be sewed to each end of every length of treated

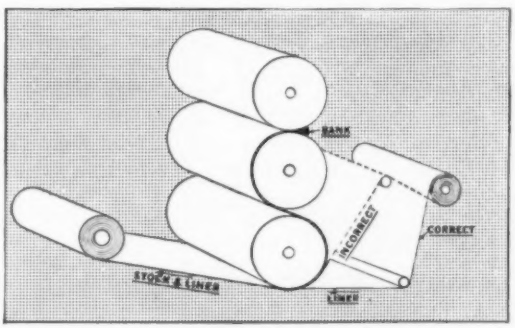


Fig 2. Wind-up of Liner and Calendered Sheet Rubber

liner leaders of plain fabric for wrapping and tucking around the stock shell. This feature is important as a means of avoiding bunching and permits the liner to be started straight with the stock.

Whenever necessary the liners should be spliced with a flat seam with several rows of stitching, as cemented or glued splices will not hold.

It is important to keep liners smooth to avoid marking the stock with wrinkles. In case these occur in the liner through faulty handling, they must be removed. A guiding attachment of some description is a great aid in keeping liners straight and smooth.

Calendered Fabrics

The arrangement of the wind-up for insertion of liners in calender coated fabric is shown in Figure 1. The roll of treated liner supported at a point near the calender is kept from turning freely by a tension hold-back. From this roller the course of the liner is horizontal to a small roller which turns it upward to a similar one, at which point it receives the stock from the calender and both stock and liner pass downward together on an angle to a power driven wind-up roller ready for removal to a bias shear for cutting tire plies.

It should be noted that in its upward passage each edge of the liner passes through a pneumatic guider comprising a short roller set at an angle and operated by a finger controlled air valve. By means of this arrangement the liner is guided over the top roller without wrinkles.

Calendered Rubber Sheet

In order to avoid subjecting rubber stocks to unnecessary pressure and prevent overheating the liners the latter should be inserted after the sheet rubber has left the calender. Figure 2 illustrates how this should be done. The liner is represented on a shell at the level of the middle roll of the calender. From this shell it descends and turns around a bar or small roller placed

[1]Illustrations and data from the Cleveland Liner & Manufacturing Co., Cleveland, Ohio.

level with the bottom of the lowest calender roll where it receives the sheeted rubber, both taking an upward course beyond the calender to the wind-up roller.

In connection with Figure 2 dotted lines will be noted. These indicate an incorrect method of guiding the liner to the calender.

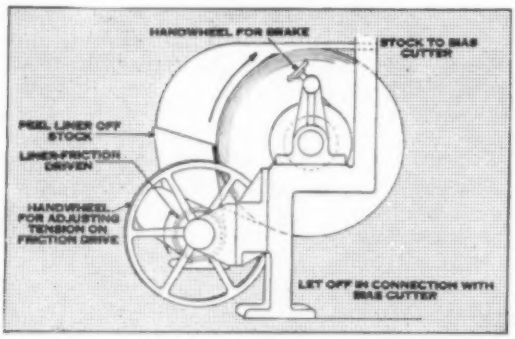

HANDWHEEL FOR BRAKE
STOCK TO BIAS CUTTER
PEEL LINER OFF STOCK
LINER-FRICTION DRIVEN
HANDWHEEL FOR ADJUSTING TENSION ON FRICTION DRIVE
LET OFF IN CONNECTION WITH BIAS CUTTER

Fig. 3. Let-off for Separating Liner and Calendered Fabric

By the correct method, also shown, the liner roller revolves toward the calender and the stock is received directly under the calender, while by the incorrect method the liner roller revolves in the opposite direction and the stock and liner contact high above the bottom roll.

Separation of Stock and Liners

Owing to natural suction produced when the liner is inserted it adheres slightly to the stock. This condition prevents slippage but stock and liner can be separated with but little effort. Two methods for effecting the separation are shown.

Figure 3 illustrates the means used to strip fabric for a bias cutter. The roll to be stripped is supported in the center under control of a hand wheel brake and revolves away from the liner friction drive roller. The tension of the latter is under control of a handwheel. The action of the let-off is to peel the liner off the fabric roller and roll it on the wind-up while the unwound stock passes on to the bias cutter.

Figure 4 illustrates the way a treated liner is removed from sheet rubber lying on a table. The liner and stock are drawn

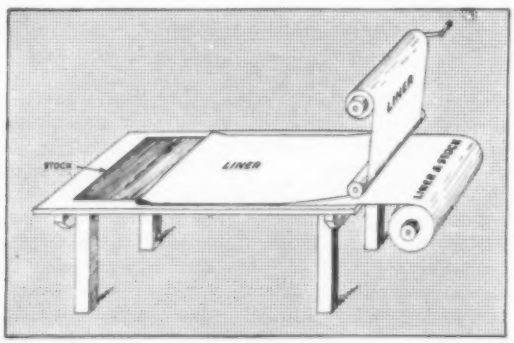


Fig. 4. Hand Separation of Liner from Calendered Sheet Rubber

over a table, with liner uppermost. The latter is then stripped back by passing the free end under a small free roller and upward to a hand wind-up shell.

Storage and Cooling of Stock

Treated liners permit the storage of stocks horizontally as the pressure of the roll will not cause undue adhesion. Vertical storage has a tendency to curl the edges of the stock and liner, causing loss of stock, and should be avoided.

Treated liners can be slit or torn to desired width and length for use in narrow stocks, book leaves and as batch separators. No trouble will be experienced by raveling or fraying out of the edges of slit or torn treated liners, because of the binding effect on the fabric construction by the chemical treatment employed.

Annual Meeting and Dinner of M. A. M. A.

At the annual meeting of the Motor and Accessory Manufacturers Association, held in New York City on January 10, all of the directors of the organization were reelected, while G. Brewer Griffin was chosen president, succeeding W. O. Rutherford, who will, however, retain his place on the association's board of directors.

G. Brewer Griffin, President, M. A. M. A.

Mr. Griffin, who began his automotive career in 1912 with the organization of the automotive department of the Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pennsylvania, is at present with that company's Springfield plant, a factory devoted exclusively to the manufacture of starting, lighting, and ignition systems. Previous to this Mr. Griffin devoted his energies to the reorganization of certain concerns, becoming president for four years of the Automotive Electric Association. He is also a member and past president of the Illuminating Engineering Society, and is an active member of the Society of Automotive Engineers, the Engineers' Club of New York, Nyasset Club of Springfield, Massachusetts, and the Detroit Athletic Club. For a number of years he has been secretary and assistant treasurer of the Motor and Accessory Manufacturers Association.

Other executives chosen were as follows: A. W. Copland, president of the Detroit Gear & Machine Co., was reelected first vice president; while Henry L. Horning, general manager of the Waukesha Motor Co., will again serve as second vice president. The third vice president is E. P. Hammond, president of the Gemmer Manufacturing Co., while L. M. Wainwright, president of the Diamond Chain & Manufacturing Co., was made treasurer, an office he has held since the forming of the association. J. M. McComb, of the Crucible Steel Co., becomes secretary and assistant treasurer, while M. L. Heminway remains general manager of the association. It is worthy of note that in recent years the interests of the rubber industry are well represented in this successful organization.

The remaining directors are: E. H. Broadwell, vice president Fisk Rubber Co.; W. O. Rutherford, vice president B. F. Goodrich Co.; C. H. L. Flintermann, vice president Detroit Pressed Steel Co.; C. E. Thompson, president of the Steel Products Co.; E. P. Chalfant, chairman of the board of the Gill Manufacturing Co., and Eugene B. Clark, president of the Clark Equipment Co.

Annual Dinner

The entertainment provided at the Hotel Astor on the evening of January 9 for the 600 guests represented the most elaborate undertaking of the kind in the history of the organization, and included a program in three parts, entitled "In Clover," in which appeared several grand opera, concert, and musical comedy stars. The musical part of the program featured Jean Charles Thomas, the baritone; Jean Gerardy, the Belgian 'cellist; Suzanne Keener of the Metropolitan Opera Company; while, as comedian, W. C. Fields, co-star of "Poppy," added greatly to the amusement of the audience. The entire second act of "Mr. Battling Buttler," from the Selwyn Theater, represented the finale of a very enjoyable entertainment.

The Rubber Association of America

Twenty-Fourth Annual Dinner

ABOUT eight hundred members and guests attended the Twenty-fourth Annual Dinner of The Rubber Association of America, Inc., held at the Waldorf-Astoria, New York, N. Y., on the evening of January 7, 1924. A delicious menu and good music were enjoyed in the handsomely decorated grand ball room, followed by a varied program of able speakers on timely topics.

An innovation this year was the decoration of the brochure containing the menu, program, etc., with numerous little pen-and-ink sketches showing indispensable uses of rubber.

After an invocation by Right Reverend Herbert Shipman, the postprandial exercises were opened by the president, W. O. Rutherford, presiding as toastmaster. At his request, all arose out of respect to the President of the United States, while "The Star Spangled Banner" was played by the orchestra.

President Rutherford's Address

Following a few words of hearty welcome to those in attendance, Mr. Rutherford referred feelingly to the death of former president Horace DeLisser and thanked officers and members for their helpful spirit of cooperation in the past and promise of support for the coming year. Greetings were read from The Rubber Association of Canada and The Rubber Growers' Association of London, England, also regrets of inability to attend from Secretary Herbert Hoover, and Senator Reed Smoot.

Referring to the rubber industry as one of the largest and most essential industries in America, a billion-dollar enterprise which has more than doubled in ten years, Mr. Rutherford asserted that it had suffered more than many other industries during the deflation period. Now, however, a dollar will probably buy more in rubber goods than in any other commodity. Continuing, he said in part:

I am confident that we have reached bottom, and the outlook for 1924 is very encouraging. My observation of business conditions throughout the country is that it is good and that business generally is good. That is also true of the rubber business.**** Finally, gentlemen, I want to say that the rubber industry strongly endorses the Mellon Tax Plan and we urgently recommend its adoption by Congress. Congress should also eradicate and eliminate the discriminatory taxes levied on motor cars, tires and parts.

In closing, he mentioned the establishment of a Rubber Division in the Department of Commerce and its close cooperation with the rubber industry, and introduced as the first speaker of the evening, J. Walter Drake, Assistant Secretary of Commerce.

Mr. Drake's Address

Mr. Drake prefaced his remarks with an allusion to the services indispensable to commerce and industry which the government must perform; pointed to the World War as a demonstration of what can be accomplished by united effort through the cooperation of industry and the government; outlined the policy of his department in helping to solve the problems confronting American business; and expressed the appreciation of the Department of Commerce for the sincere support and assistance of The Rubber Association of America.

Referring to the concern of Secretary Hoover regarding foreign combinations effecting price and exportation control over rubber and other raw materials important to American industry, he outlined briefly the measures being taken to protect our home industries, particularly the survey now being conducted by the Department of Commerce to ascertain the possibilities of rubber production in parts of the world now unimportant in that regard. Concerning this survey he said:

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Hon. J. W. Drake

© *Harris & Ewing*

Samuel R. McKelvie

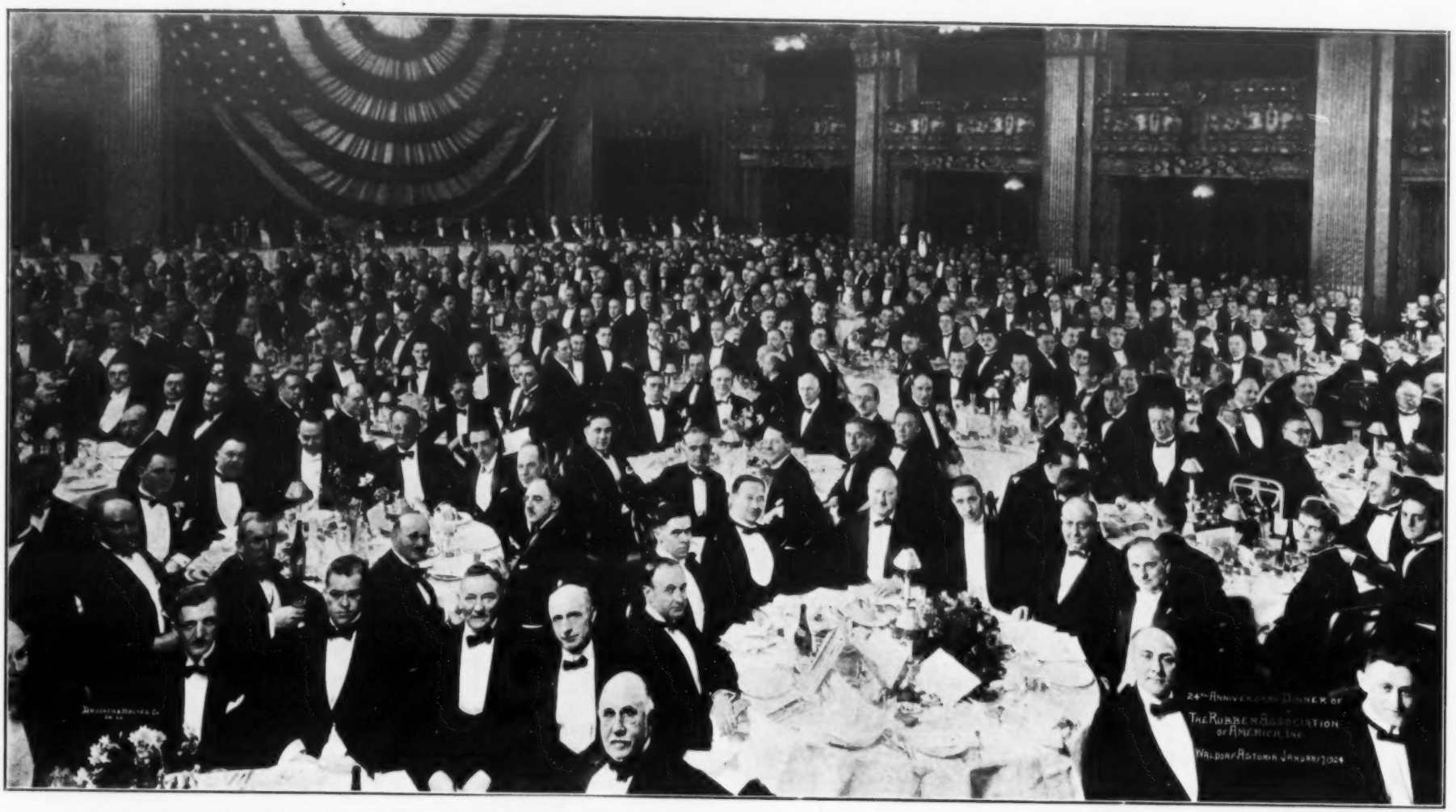
T. E. Burton

Hon. J. A. Preus

Believes Department Survey Stabilized Prices

It is our hope and belief that the interest and activity shown in this regard has contributed in stabilizing prices of rubber at a not unreasonable figure. Members of the British Rubber Committee which visited the United States about a year ago were surprised that the Department of Commerce was so deeply interested in rubber restriction. The fact is that during the past two or three years we have come to a full realization that the Department in its service to business, and because of accurate understanding created by mutually helpful relations, would not fail to exert its influence and effort for our industrial security in protection against foreign restrictive influences that might be menacing to our business prosperity. Such an interest and influence is not without its moral effect throughout the world and we are warranted in believing that things might be more uncomfortable had not a united front been presented through the United States Department of Commerce and the Rubber Association of America.

The Rubber Association Banquet



Twenty-Fourth Annual Dinner of The Rubber Association of America, Inc., at the Waldorf-Astoria, New York, N. Y., January 7, 1924

Our Impending Need for Rubber

The discussion of rubber production possibilities in other directions in connection with this investigation has brought a realization of our impending need for rubber. It is generally understood that about 80 per cent of the rubber consumed in the United States goes into automobile tires, and I need not refer to the increase in the number and uses of automobile vehicles in the United States. Such an increase of demand for rubber may be met to some extent by improvement in the quality of rubber products such as you gentlemen have shown yourselves so willing to promote, but there will continue to be a constantly increasing demand for rubber in many directions. It is vital that we should have an assured and adequate supply at a fair price.

Authoritative Facts for Future Guidance

If rubber plantations can be economically developed in countries close to the United States or under the American flag, future shortages will be rendered more remote and protection from unfavorable foreign legislation may arise through that fact. The investigating parties sent out by the Department of Commerce are now studying the problems in four separate areas of the earth. They will prepare a report of their findings in which all the factors controlling in the foreign regions will be set forth. Their instructions are to find all the facts, whether favorable or unfavorable, and report them fully and intelligently. From this report we may confidently expect that the American rubber industry will have the information in its hands which will guide it in its attitude toward future control of its raw material supplies.

Former Governor McKelvie's Address

Practical farmer, publisher of farm papers, and politician, former Governor McKelvie entertained his hearers in alternately humorous and serious vein with a recital of the ills and prospects of the American farmer. Inflation, over-production and deflation have been the experience of the farmer since 1914, just as in business generally, and legislation and too much credit have been of no more help to him than to general business. But the farmer, he said, has recognized the fundamental causes of his condition and applied the necessary fundamental remedies, just as business generally must do. The result is that he is on a substantial basis of readjustment and improvement. In explanation of this he said in part:

Business Principles and Cooperative Marketing

He began to pay off his debts. He began to reduce the cost of production. He worked longer hours. He did the very things that will put any business upon its feet if it is possible to put it upon its feet.

He is recognizing, too, that the principles that apply in successful industry and other lines apply equally well with him. So he is organizing to market his products cooperatively, to eliminate the waste, to shorten the distance between the farm and the ultimate consumer. That is the theory of cooperation, and in practice it is producing results.

Agriculture Leads Industry in Deflation

Everything, particularly the enormous business of the mail order houses, Mr. McKelvie pointed out, indicates the marked improvement of conditions in the agricultural sections of the country, which will continue gradually. The farmer having taken his losses, charged them off, and getting back to work has followed the course that other sections of the country must certainly follow. Industrial regions, and particularly industrial labor, that have not yet been thoroughly deflated, he asserts, must yet come to bear that burden. Said he:

Price Disparity Between Raw and Finished Products

The farmer recognizes that the one thing that stands in the way of general prosperity in this country today is the disparity in price between the raw products of his labor and the finished products that come from the factories, and he recognizes that this super tax is not paid finally by the manufacturers; it is paid by him, and every other consumer. One thing that is going to reduce commodity prices will be the lifting of the overhead burden of tax from the industry of this country.

Senator Burton's Address

Senator Theodore E. Burton, of Ohio, spoke on the financial and industrial outlook for 1924. He quoted numerous statistics showing the volume of business in the rubber and automotive industries and their close inter-relation. He also touched on the numerous other uses of rubber and pointed to the great expenditures of money for new buildings, good roads and railway equipment, all of which mean more business for the rubber industry.

Plenty of Money at Low Rates

As regards the general industrial situation he said:

There will be an abundance of credit for any one who requires it. We have the Federal Reserve System. We have four billions of gold. The banks can supply all needs. Rates of interest probably will vary somewhat during this coming year, but they will go down rather than up, and I anticipate that in two or three years there will be a very material decrease in the rates of interest on long time loans. Maybe it is a good time to buy bonds right now, although they have already received some considerable enhancement in value.

Foreign Loans Would Build Export Trade

There are some unfavorable features, it is true. That great mass of gold causes inflation, increased prices, and is in a way a menace. It would be a blessing to us here in America if some billions of it could be sent abroad for good loans and for investment in foreign countries so that the flow would come back to us in increased demand for our products. The situation in Europe is bad.

Taxation and the Soldiers' Bonus

Senator Burton went on record as favoring a reduction in the burden of taxation as tending toward lower wages, prices and greater general prosperity. He condemned the soldiers' bonus as putting a shameful monetary value on duty, valor and love of country, but for disabled soldiers he encouraged every necessary provision. To pay a bonus by Federal taxation, he pointed out, would place a barrier in the way of the young, strong and ambitious that would prove deleterious to the best interests of the country.

Governor Preus's Address

Governor J. A. O. Preus, of Minnesota, the final speaker of the evening, devoted himself chiefly to the dangers of foreign socialistic influences in the United States. He narrated interestingly the agricultural and industrial development of the territory west of the Missouri River, the trials and discontent of immigrants from Norway, Sweden, Russia and largely from Germany, the activities of socialists and rabid demagogues and their attempts to seize control of affairs in Minnesota as well as in North Dakota.

He pointed to the dangers to business, church, home and all established institutions lurking in the socialistic order as existing in Russia; warned of the efforts of international councils to extend their control in this country; and asserted that business men throughout the country must do their share in voting, in the conduct of their business, and in whatever else may be necessary to maintain our government in the interest of all. Among the highlights of his remarks were the following:

Our Republic and Capitalistic System

Now, you men, some of you, probably don't stop to consider that there were two things which our forbears did for this government and for our people and ourselves. They established, first, a republic, and you know what a republic is. They established, secondly, an economic system, and that is a capitalistic system. What is the capitalistic system, anyway?

You might say there are two principal economic systems, according to which we could live, the capitalistic and the socialistic. The capitalistic system is the system which gives us the right to own property and make money on it.

Today, as our State Department is looking into . . . (Russian Soviet propaganda in the United States), we who sit here supinely and accept this government as something given to us, and that we are entitled to, don't often enough think of the struggles which our forbears had to build up these institutions, and we do not stop to consider with what possibly we may be confronted when the demagogue goes to people of ordinary, normal understanding, and fools them and cajoles them, as has been often done in our country.

Officers and Directors of The Rubber Association, 1924

George B. Hodgman
Treasurer

H. S. Hotchkiss

G. B. Dryden

A. L. Viles
General Manager-Secretary

G. M. Stadelman
First Vice-President

W. O. Rutherford
President

Charles B. Seger
Second Vice-President

J. S. Lowman

A. L. Scheuer

W. F. Pfeiffer

W. E. Bruyn

G. E. Hall

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J. C. Weston

S. G. Lewis

E. H. Broadwell

Charles T. Wilson

Portrait of Charles E. Stokes, a director, not available.

Must Win Confidence of Our Foreign Population

The foreigners who have come to our Northwest from foreign shores did not come with the idealism in their souls that brought William Penn to Pennsylvania, that brought the Puritan to New England, or that brought the Catholic to Baltimore—the right to worship God as they pleased. They are men who have come here for materialistic reasons, who have come here because they wanted more comfort, easier work and more money in their pockets.

And to conceive that those men and those women would embrace a system different from the one handed down to us from our forefathers is absolutely impossible. But we neglect frequently our duty in speaking and associating with and having that contact with these people which gives them the confidence in our judgment who are fortunately situated so as to have a little more understanding of those things than those men frequently can have by reason of their having less education and opportunity.

When I think of these people who run around and want to simply destroy, build up nothing, then I am tempted always when I speak in public, to ask you to look back at the handiwork of those who went before us, those who gave us our political system, and who gave us the economic system. Then I am willing to do my share not to destroy, but to build and purify and ever make better and stronger.

Seated at the President's table were the following prominent men representing the United States and Great Britain, the automotive industry and the rubber industries of the United States and Canada:

William O'Neil, General Tire & Rubber Co.; J. C. Weston, Ajax Rubber Co.; W. E. Bruyn, L. Littlejohn & Co.; C. E. Stokes, Home Rubber Co.; M. W. Alexander, National Industrial Conference Board; W. F. Pfeiffer, Miller Rubber Co.; G. B. Griffin, Westinghouse Electric & Manufacturing Co.; Frederic C. Hood, Hood Rubber Co.; Hon. J. Joyce Broderick, British Embassy; H. Stuart Hotchkiss, United States Rubber Co.; Hon. J. Walter Drake, Assistant Secretary of Commerce; C. B. Seger, United States Rubber Co.; Hon. J. A. O. Preus, Governor of Minnesota; W. O. Rutherford, The B. F. Goodrich Co.; Right Reverend Herbert Shipman, Suffragan Bishop of New York; Hon. Theodore E. Burton, Congressman from Ohio; G. M. Stadelman, Goodyear Tire & Rubber Co.; Hon. Samuel R. McKelvie, former Governor of Nebraska; G. B. Dryden, Dryden Rubber Co.; Windsor T. White, Automobile Chamber of Commerce; F. A. Seiberling, Seiberling Rubber Co.; H. W. Alden, Society of Automotive Engineers; E. H. Broadwell, The Fisk Rubber Co.; W. A. Eden, Canadian Consolidated Rubber Co.; F. R. Henderson, F. R. Henderson & Co., Inc.; A. L. Scheuer, Kelly-Springfield Tire Co.; Charles T. Wilson, Charles T. Wilson Co., Inc.; M. H. Clark, Tyer Rubber Co.; S. T. Lewis, Pennsylvania Rubber Co.; and J. S. Lowman, Philadelphia Rubber Works Co.

Annual Meeting of the Rubber Association

Reports of Officers and Committees—Addresses—Open Forum—Election of Directors and Officers—Division Meetings

THE annual meeting of the Rubber Association of America, Inc., convened at the Waldorf-Astoria, New York, N. Y., at 2:45 p. m., January 7, 1924, President W. O. Rutherford, presiding. Formalities such as the reading of the call for the meeting, and of the minutes of the previous meeting were dispensed with on motion from the floor. The reports of the general manager and treasurer, having been printed and distributed, were not read, but unanimously approved.

Crude Rubber Restriction

The report of the special committee on crude rubber restriction was embodied in the printed report of the general manager and therefore not read. H. Stuart Hotchkiss, chairman of the committee, stated as his personal opinion that restriction had worked out very much as was anticipated by the British. The price of rubber had in effect stabilized and no actual shortage had developed.

The American manufacturer, he said, is more vitally interested, if anything, than the producer in having rubber stabilized at a price which will permit plantations to live. Uses of rubber are increasing, the manufacturing industry is continually expanding, and it is necessary to look to the future.

Published cost figures, he pointed out, are apt to be very misleading, as they usually indicate only the f.o.b. cost at the point of shipment, but do not often take into consideration interest on the investment, reasonable profits or amortization. The situation at present, he believes, offers no very serious problems to the manufacturer, but its development should be watched.

Report of the Tax Committee

In the absence of Chairman Van Cleef, General Manager Viles spoke for the Tax Committee, which, he said, had been in contact with Senate and House Committees and Treasury Department officials at Washington for the purpose of presenting to them the absolute need of removing the war-time discrimination against the rubber industry, particularly regarding tires, with respect to the so-called excise tax of 5 per cent on sales, estimated to yield about $30,000,000 per year.

All these officials, he said, admitted that these taxes are discriminatory and therefore unjust, but they are classed among automotive taxes, the automobile industry contributing about $100,000,000 per year more. The attitude of the officials concerned was that without the voice of the people in protest there was no reason to consider the appeal. The Tax Committee has therefore asked all members of the Association to present their appeal to their senators and congressmen, and has particularly asked tire manufacturers to have their sales organizations secure the cooperation of dealers throughout the country along the same lines.

Addresses During the Balloting

While balloting on the nominations for new directors by firm members was in progress, addresses were made by President Rutherford, Frederic C. Hood and Seneca G. Lewis.

Address of President Rutherford

President Rutherford spoke with broad vision and keen insight on fundamentals for the benefit of the industry. Some of the highlights of his address follow:

Ours is largely a merchandising problem and we must be close students of market conditions in order that we may build strictly to the public needs. This is the path that leads to an accurate balance between raw material purchases and finished goods, with the resultant tendency toward industrial good health.

Economy should be one of the keynotes of the future. The present productive capacity of this industry is 25 per cent in excess of its needs. There is no room for any immediate expansion of our manufacturing facilities.

The best means for the conduct of our business is to establish a budget for each departmental division within it. The first and fundamental step is a carefully prepared sales forecast. The budget should cover raw material purchases, manufacturing costs, factory and general overheads, sales and advertising expenses. These with a financial budget and a reserve for profit constitute what I consider primary essentials in every well-conducted enterprise.

We have suffered much from peaks and troughs in production. Our moral obligations to our factory workers demand that we give them constant employment. Unsteady employment is costly to the individual and the corporation alike. We also need closer harmony between production schedules, public consumption and existing inventories. Our association has done much good work in this direction and with contemplated improvement in our service we offer a safe guide for the establishment of monthly production schedules.

As individual companies we have over-extended our service to the trade, with no consequent gain to anyone. The cost of delivering our merchandise has been excessive. The future trend should be toward limiting the points of contact with the trade in the interests of sound merchandising. Dealers and purchasing agents should be taught that it is advantageous and profitable for them to anticipate their needs. This will automatically build up a better class of merchants, and will likewise improve the service to the public.

Mr. Rutherford stressed the importance of simplification of lines in the interests of economy, and of reasonable profits on capital invested as a moral obligation to stockholders. He pointed to the present immensity of the rubber industry and its vital part in transportation and the forward march of civilization, and prophesied that we are on the threshold of a great era of growth and development, largely through the discovery of new uses for rubber that may even exceed present tire tonnage. To absorb excess factory capacity he suggested a collective, industrial study by the Association of new uses for rubber.

Address by Frederic C. Hood

Frederic C. Hood spoke authoritatively on "Fundamental Accounting Principles for the Rubber Industry." He told of the efforts of the Accounting Committee to develop a uniform accounting system for rubber manufacturers; and outlined the many benefits of uniform accounting as being developed by the committee with the assistance of its competent paid secretary. He said in part:

Every manufacturer knows the importance of having uniform ledger accounts so that proper comparisons can be made from year to year, but not all have realized the importance of competitors adopting uniform reports and uniform accounting systems by which it is possible to compare costs and operations with other concerns.

If a uniform cost system were evolved which could be accepted in its fundamentals by the industry, the systems of cost accounting in use could easily be adapted to the uniform system, and much expensive experimentation of cost methods would be eliminated and intelligent comparisons could be maintained.

Lines of individual products marketed on an unprofitable basis would be forcibly brought to the attention of the management, and the industry rather than the individual manufacturer would see the point below which goods cannot be sold at a profit.

Uniform cost accounting provides a method of measuring factory and selling efficiency, and gives the management the proper information on which to base decisions of its policies.

I think we should all accept as fundamental the thought that it is worth while to know, at least, the merchandise and labor and factory overhead costs of the individual items which are manufactured, for if the individual costs are known it is obvious that the management can place more intelligent individual selling prices on these products.

I could never see any sense in selling one article at a loss and another article at an unnecessarily high profit to make up for that loss.

The one fundamental principle to be recognized in all uniform accounting is that invested capital is entitled to a proper wage, commensurate to the risk, before profits are made or distributed.

Proper dividends should always be regarded as an expense, and should never be figured as coming from earnings; for, in my opinion, there are no profits until interest has been paid on all capital employed, whether that capital be fixed or borrowed.

So in our cost budget estimates we must figure a proper interest on the total capital employed as an expense.

Mr. Hood's Organization Plan

Turning to the possibility of budgeting the human elements of management personnel, and applying the experience of the accounting committee to other activities of the Association, he referred to the DeLisser suggestion of a Landis, McAdoo or Hayes to make the machinery of the rubber industry run smoothly, and discussed the proposal of Charles E. Wood that six such men be placed over the six main divisions of the industry.

The work of many associations, including the Rubber Association, is criticized, he said, and there is a fundamental reason for it. Therefore it is the job of members to stay in and help to right matters rather than to get out and scold those who have given such of their time as they could spare from their busy lives for the benefit of the whole industry. Nobody, he believed, would accept office in the association for the purpose of selfish ends. He gave everybody credit for good intentions, but asserted that they could not be executed without skillful and capable executive management.

He then reviewed the organization of the association and offered a plan for the executive work in the interest of better service to members and the public, which he asserted would solve the problems which both Mr. DeLisser and Mr. Wood had in mind. Briefly his suggestions follow:

First, a nominating committee composed of all the past presidents as a step toward making the directorate representative of every activity of the industry rather than merely of popular personalities. Nominating fourteen men for seven offices is not advisable.

Second, executive officers elected by the board of directors, together with the past presidents, acting as directors *ex officio*.

Third, the president to be the chief executive officer of the association, as well as chairman of the board.

The board of directors, with the president, should discuss and adopt the various scopes of activity that the association can cover, and should appoint an advisory chairman for each activity. A small sub-committee for each activity should then be formed, preferably by each advisory chairman, but subject to the approval and formal appointment of the president, so that the chairman can be held responsible for the work of his committee.

Fourth, the general manager should be subject to the president and should always be ready to carry out the policies adopted by the board of directors.

Fifth, a competent secretary should be provided for each sub-committee, either by the association or by the contribution of members of the division concerned.

Under this plan the directors would decide general policies; the sub-committees would discuss their respective problems and policies; and the secretarial staff of the general manager would be increased so as to help the sub-committees to get both results and harmony with maximum economy.

Address of Seneca G. Lewis

Seneca G. Lewis spoke along the line of business fundamentals and economies in a vein similar to that of President Rutherford. He emphasized the need of eliminating freight losses, such as the payment of two or three freight charges, as in sub-warehousing arrangements, and hailed the lifting of the subsidized arrangement with the trade in the form of a two per cent cash discount as an outstanding accomplishment of the past year which would help the industry in the eyes of financial institutions.

The salvation of the rubber industry, at least the tire branch of it, he believed, rests on the basis of individuality. Companies have all striven to build up the idea that a tire is just a tire. Treads and features have been advertised, but all have taken the position that if one firm cuts the price all the rest must do so; the tire business has been made easy for the mail-order house and the nondescript. Henceforth he believes that each firm must depend more on certain classes of business which it can obtain because patrons are in sympathy with its particular selling methods and the service given by the product.

Paying his respects to the leaders in the industry for what they accomplished last year, he said:

The smaller manufacturer has blamed the so-called big five for everything disagreeable that has happened for the last decade. Now, for goodness' sake, give them credit for 1923.

The Budget for 1924

The report of the Budget Committee, presented by Seneca G. Lewis and approved by the meeting, recommends to the incoming board no increases in division expenses, but a substantial increase in administration, for the purpose of carrying out the different activities inaugurated in 1923. Maintenance of the fee of three cents per hundred pounds on crude rubber imports was recommended to provide funds, and the provision unanimously approved on motion of Seneca G. Lewis.

Proposed Amendment of By-Laws

The recommendation of the board of directors to revise Section 2 (a) of Article VI of the Constitution and By-Laws to provide that the nominating committee shall prepare a list of exactly the same number of nominees as there are directors to be elected, instead of double that number, was finally laid on the table for a further exchange of views, on motion of Homer E. Sawyer, after an animated discussion invited by the chair in which Messrs. Seiberling, Viles, Bourn, Rutherford, Voorhees, O'Neil, Clark, Kearns, Hood, and Sawyer participated.

Mr. Seiberling questioned the wisdom of concentrating nominations for directors in a small committee and contended for democratic control of the association. While he believed there was no justification for the criticism that small manufacturers were powerless in the hands of a small minority of big manufacturers, no occasion should be given small manufacturers to lose interest in the association. He believed that the 15-day notice for additional nominations required under the by-laws should be eliminated.

Messrs. Bourn and O'Neil both supported the amendment, but the latter advocated throwing off all restrictions on nominations from the floor at annual meetings. Mr. Voorhees contended for adequate serious consideration. Mr. Kearns favored the present by-laws without revision as likely to result in a more democratic and representative directorate, and pointed out that adoption of the proposed amendment would restore the nomination procedure to its form prior to 1918, when the threatened organization of an association of small manufacturers in Akron brought about the present rule.

Mr. Hood explained that his thought was to avoid the humiliation of half the nominees being defeated, but that he was agreeable to any practical scheme that would get such men as directors as the members wanted. He thought perhaps the nominating committee might adopt the practice of asking members for names of desirable nominees thirty days before the committee nominations were sent out, and that this procedure might accomplish the desired purpose.

Mr. Sawyer pointed out the difficulties of the nominating committee and the sincere effort since 1918 to see that small concerns were represented and geographical situation considered. As an honest difference of opinion had arisen calling for a further exchange of views in the interests of harmony within the association, he suggested that no harm would be done if the rule continued as it is for another year, which was agreed to.

Address By L. C. Rockhill

L. C. Rockhill, speaking on the subject of "Industry, Publicity and Advertising," voiced the general feeling that the public did not appreciate nor give due credit for the services or square deal it was getting from the rubber industry. Feeling that the tire branch was a public measure of the whole industry and had in many ways become the legitimate prey of the public, he reviewed the program of publicity and advertising which the Tire Division of the association had undertaken last year to acquaint the public with the problems and accomplishments of the tire industry, somewhat along the lines of recent railroad advertising.

It was utilized, he said, to assist the campaign for reduction of expenses and devoted to explaining the standard tire warranty and the question of adjustments. The warranty had reduced losses about 50 per cent and would probably save another 35 per cent this year. All letters resulting from the advertising had indicated that it had been well received by the public, and the "Old Timers' Contest" had shown a hearty appreciation of what the tire industry had done in the way of improving the character of its product, in increasing tire mileage, in reducing tire troubles, and giving the public better service. There were many other opportunities, he believed, to tell the public some of the good things being done for them by various branches of the industry somewhat along the lines of recent cement and paint advertising.

Address by Charles B. Seger

Charles B. Seger sketched for his hearers two contrasting pictures of conditions as he had found them by a long experience with the railroads and a short experience in the rubber industry. What the latter needed, he thought, was a better spirit of acquaintance and good fellowship among the men engaged in it. He expressed surprise at the utter lack of confidence and abundance of mutual distrust which exists within the industry. The reason for this he believed to be over-prosperity in the past and having felt the pinch recently.

Regarding this he said in part:

There has been, in recent months at least, a disposition to eliminate or eradicate distrust and substitute confidence. Without reflection on any of us—and I happen to be one of you now—I don't believe you have had any particular change of heart or that your judgment is any better now than it was three or four years ago; it is the same old story; you have felt the pinch. That is all. And you have felt the necessity to get together. And the sooner we get together, the closer we stay together and the longer we stay together, the better in my humble opinion it will be not only for the individual companies, but for the industry as a whole.

I can see no reason why the rubber industry, through this association or otherwise, cannot do a great many things along the lines that have been discussed today which will save money and benefit our companies individually and the industry as a whole.

Referring again to the railroads, he did not know what they would do without their Traffic, Accounting Officers' and General Managers' Associations and believed much good work along similar lines could be done by the Rubber Association.

He commended the idea of educating and getting the good will of the public, and suggested that something similar be done within the industry to prevent the detrimental effect of misleading loose statements made by persons within the industry. Said he:

I think instead of discrediting our industry we ought to, so far as we can consistently, undertake to credit the industry and to inspire confidence in the industry and in the people who are now in charge of it, to work it out on some sound basis, as I am sure will be done before we get through. But let us all make up our minds that no matter what we think of the other fellow, we are not going to throw any bricks; we are going to try to be helpful within the industry as well as to educate the people without.

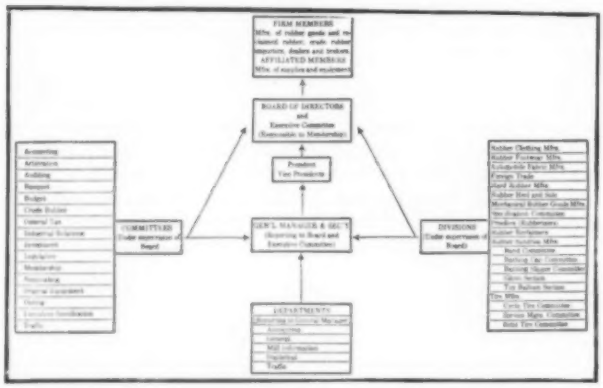
Services Suggested by Charles E. Wood

Just before adjournment Charles E. Wood suggested that the association should maintain numerous additional services in charge of competent experts for the benefit of members. These included cost accounting, engineering, standard warranty, marketing obsolete sizes and designs, Federal taxes, credit bureau, insurance department, legal department, mechanical appliance development and chemical research.

General Manager's Report

A 30-page report of Rubber Association activities during 1923, prepared by A. L. Viles, general manager, was distributed at the annual meeting. It summarizes the many and varied activities of the organization and indicates the importance of the work being accomplished, notably the great strides in standardization and in cooperation with allied trade organizations. Its various sections, with marginal subheads for ready reference, are devoted chiefly to matters connected with manufacturing, merchandising and traffic conditions, foreign trade, accounting, statistics, cooperation with other organizations and miscellaneous activities.

In the introduction, Mr. Viles alludes to the decided and very gratifying increase in the number of members participating in association activities. Many members, he states, are fast realizing the important cumulative effect of cooperative activity through an association, in that the successful solution of one problem almost invariably indicates the desirability (if not the absolute necessity) of attempting to solve one or several related problems which might previously have seemed impracticable.



Rubber Association Organization Chart

A natural and steady extension of the work being done by the association is to be expected, together with a corresponding expansion of the association staff. This entails increased operating expense, but the desirability of recognizing and providing for co-operative activity in a business as large as the rubber industry is a matter which should have the favorable consideration of every member of the association.

Election of Officers

At the annual meeting the following were elected to the Board of Directors to serve for the period January, 1924, to January, 1927:

G. E. Hall, president, Boston Woven Hose & Rubber Co.

W. F. Pfeiffer, vice president and general manager, Miller Rubber Co.

A. L. Scheuer, president, Kelly-Springfield Tire Co.

C. T. Wilson, president, Charles T. Wilson Co.

C. B. Seger, chairman of board and president of the United States Rubber Co.

E. H. Broadwell, vice president and general manager of The Fisk Rubber Co., and J. C. Weston, chairman of board and president of the Ajax Rubber Co., were elected to fill vacancies in the board, their terms expiring January, 1925.

The Board of Directors at its organization meeting, immediately following the association's annual meeting, elected the following officers for the year 1924:

President, W. O. Rutherford, vice president, The B. F. Goodrich Co.

First vice president, G. M. Stadelman, president, Goodyear Tire & Rubber Co.

Second vice president, C. B. Seger, chairman of board and president, United States Rubber Co.

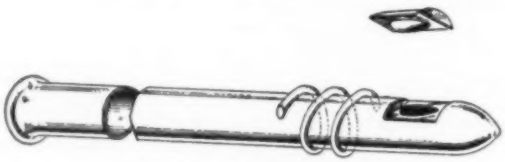
Treasurer, G. B. Hodgman, president, Hodgman Rubber Co.

General manager and secretary, A. L. Viles.

How Catheters Are Made

The appliance for physicians' use known as a catheter is a soft flexible molded tube open at one end, the other having a blunt point with small side opening.

The customary method of making a catheter is to close one end of a tube of uncured rubber stock with a short plug of the same material, forming the walls of the tube over the plug in the form of a blunt point. The tube is then ready for molding, which is done in a glass tube with an open flared end, the other being closed and having near its end a spot depressed inwardly to form a similar depression on the catheter.



Mold for Catheter

A few drops of ammonia water are placed in the rubber tube, the end of which is flared to serve as a packing under the clamp which is attached to the flaring end of the glass mold. The curing is effected by steam heat. The use of glass tubing for molding catheters gives the article a surface finish of the highest polish.

The difficulties and breakage incident to the use of glass molds have been overcome by the substitution of aluminum tubing[1]. The special features of the new form are seen in the illustration, in which a section of the tube near the closed end is cut away so as to form an elongated aperture and a seat for a closing piece having a protuberance on its inner side. The protuberance forms the indentation in the catheter. The closing piece is held firmly in place by slipping over it a close fitting coil spring.

After the cure the spring is drawn back and the closing piece removed to permit easy removal of the catheter. Following its cure, the side aperture of the catheter is bored on an angle from the indentation into the main tube, and the open end is trimmed or cut off at right angles.

[1] United States patent No. 1,404,042.

Report of Inventory—Production—Domestic Shipments of Pneumatic Casings—Inner Tubes—Solid Tires

	Pneumatic Casings				Inner Tubes				Solid Tires			
	No. Mfrs. Reporting	Inventory	Production	Shipments	No. Mfrs. Reporting	Inventory	Production	Shipments	No. Mfrs. Reporting	Inventory	Production	Shipments
1922												
Twelve months	..	58,401,086	30,698,139	29,221,899	..	72,463,938	38,137,181	36,656,435	..	2,320,650	786,603	688,845
1923												
January	62	4,695,916	3,127,270	2,994,297	62	5,838,310	3,951,885	3,748,651	11	262,462	83,343	60,611
February	60	5,224,387	3,217,987	2,588,639	60	6,771,958	4,039,202	3,001,697	11	270,191	75,457	63,394
March	58	5,670,601	3,855,726	3,322,637	57	7,740,945	4,875,414	3,828,315	11	265,843	79,788	77,144
April	56	6,088,272	3,539,326	2,976,160	55	8,394,184	4,259,558	3,535,635	10	260,631	71,468	72,609
May	57	6,906,594	3,659,986	2,757,764	57	9,292,223	4,317,537	3,414,115	10	268,323	77,288	67,147
June	55	7,040,600	2,956,943	2,502,185	54	8,924,326	3,590,011	3,581,060	10	283,425	72,445	52,126
July	54	6,471,124	1,992,989	2,539,425	52	7,527,281	2,666,354	3,942,247	10	263,891	42,345	45,219
August	58	6,058,387	2,355,915	2,807,432	53	6,950,578	3,577,922	4,304,034	10	262,810	48,141	45,925
September	60	5,397,557	2,029,581	2,623,775	55	6,457,455	3,254,575	3,683,574	10	249,379	37,074	45,971
October	59	4,876,352	2,361,340	2,819,583	55	6,898,425	3,855,244	3,595,737	10	234,945	37,285	48,065
November	55	4,689,329	2,399,725	2,456,296	53	6,693,639	3,451,716	3,422,426	11	213,686	32,577	49,471

"Production" and "Shipment" figures cover the entire month for which each report is made. "Inventory" is reported as of the last day of each month.

"Inventory" includes tires and tubes constituting domestic stock in factory and in transit to, or at, warehouses, branches (if any), or in possession of dealers on consignment basis, and as a total represents all tires and tubes still owned by manufacturers as a domestic stock.

"Shipments" includes only stock forwarded to a *purchaser* and does not include stock forwarded to a warehouse, branch, or on a consignment basis, or abroad.

(Compiled by The Rubber Association of America, Inc.)

What the Rubber Chemists Are Doing

Acceleration of Vulcanization by Xanthates and the Influence of Metallic Oxides As Promoters[1]

THE advantages of acceleration of vulcanization by xanthates and the influence of metallic oxides as promoters are made clear by the following extracts from a recent paper on this new class of accelerators.

The designation "accelerator" is much to be preferred to that of "catalyst," because although some accelerators of vulcanization may be catalysts there are some which decidedly are not. Unfortunately, even the name "accelerator" implies a restricted range of use or purpose, whereas, in actual fact, materials of the class in question are applied to produce quite a number of different effects; the accelerating power, indeed, may become quite a minor consideration, or even merely incidental.

The class of accelerator described provides a marked and perhaps extreme instance of certain advantages to be gained in addition to the mere expediting of the vulcanization process.

The first record in English of the use of zinc ethylxanthate in connection with rubber, was by G. Bruni and E. Romani[2].

With the exception of a very brief statement[3] no record has yet been made in the chemical literature of the characteristic features of vulcanization with the aid of the metallic xanthates.

It is noteworthy that the activity of the zinc alkylxanthates is greatly influenced by the presence of a suitable metallic oxide, such as zinc oxide. At ordinary vulcanizing temperatures, *e.g.*, at 148 degrees C., in the presence of a zinc alkylxanthate vulcanization gives no clear indication of anything exceptional, and follows the usual course; the tensile strength of the product on continuous heating gradually increases to a maximum value, and then decreases rapidly. With zinc oxide as an additional ingredient the vulcanizing behavior of the mixture still gives no evidence of any remarkable acceleration. At lower temperatures, however, *i.e.*, below 138 degrees C., a distinct alteration in the conditions is observable; vulcanization is then greatly expedited and occurs much more rapidly than at higher temperatures. This difference is most noticeable in the presence of zinc oxide, even as little as 1 per cent not only promoting the acceleration in a very marked manner, but also exerting a striking improvement in the physical properties of the product.

Variation in the proportion of xanthate compound has a much greater influence on the results. Adjustment of the proportion of zinc alkylxanthate provides a ready means of ensuring any desired degree of vulcanization. Having decided on the correct proportion of alkylxanthate, it is merely necessary to heat to some temperature below 128 degrees C. for any convenient time, when the vulcanization process will automatically yield the desired result irrespective of the actual length of the period of heating.

The proportion of sulphur in the mixture, however, also has an influence on the "static" degree of vulcanization attained, and adjustment of the sulphur is perhaps more easily effected than that of the alkylxanthate.

Mention has already been made of the fact that increase in the proportion of zinc oxide beyond 1 per cent, calculated on the rubber-sulphur mixture, does not exert any very great change in the nature of the effect, the initial 1 per cent sufficing to produce almost the full promoting effect.

Effect of Zinc Oxide

It is indeed remarkable that zinc oxide, which possesses very marked power of improving or reinforcing the physical characteristics of rubber when present merely as a "filler" or ordinary compounding ingredient, should also be without an equal with respect to the more chemical operation of promoting the activity of organic accelerators. Many basic oxides are capable of accelerating the vulcanization of rubber by sulphur, but zinc oxide is practically inert in this respect; on the other hand, such bases as magnesium oxide, lime, and litharge, are relatively valueless as promoters of vulcanization by zinc alkylxanthate. Potassium hydroxide is definitely harmful in this direction. It may further be remarked that vulcanization of rubber by sulphur (90:10) in the presence of lead ethylxanthate (1½ per cent) and litharge (14 per cent) at 128 degrees C. gives no sign of the rapid attainment of a "static condition" until after a heating period of approximately 2 hours. This combination of lead compounds is therefore decidedly less active than the corresponding combination of zinc compounds. Mention may also be made of the fact that potassium ethylxanthate in conjunction with zinc oxide shows feeble activity, probably by the formation of a little zinc xanthate *in situ*.

Comparison of cadmium in both accelerator and promoter with zinc showed that the two cadmium compounds possessed a slight advantage over the analogous zinc combination in the tensile strength of the product especially for the shorter periods of vulcanization; judged, however, by the extensibility of the products, the combination of zinc accelerator with zinc promoter is more effective. The differences, nevertheless, are generally slight. The parallelism of the effect of cadmium oxide, and its relative inferiority are shown by results with thiocarbanilide and hexamethylene tetramine cured at 138 degrees C.

Summary

The zinc alkylxanthates form the most powerful class of accelerators yet examined, enabling rapid vulcanization to be effected even at 78 degrees C. Their behavior cannot be described as mere catalysis.

They are much less effective at 148 degrees C. (50 pounds steam pressure) than at 78 degrees C., and give better products at the latter temperature.

Below 138 degrees C., the course of vulcanization is quite different from the normal. Even with a 90:10 rubber-sulphur mixture the rubber attains a relatively low degree of vulcanization, and prolongation of the heating effects no further vulcanization. Under suitably chosen conditions therefore, over-vulcanization can be rendered impossible, whatever the proportion of original or residual sulphur. On account of the astonishingly short period during which vulcanization occurs, the curves for the strength, stretch, and coefficient of vulcanization are practically linear and parallel with the time axis.

The degree of vulcanization attained is primarily dependent on the proportions of zinc alkylxanthate and of free sulphur originally present. The presence of zinc oxide has an important influence, but 1 per cent is sufficient.

The cadmium alkylxanthates possess similar power to the zinc compounds.

Cadmium oxide is almost as effective as zinc oxide in "promoting" the activity of alkylxanthates and other organic accelerators of vulcanization. Magnesium and mercuric oxides are practically valueless as "promoters" in this direction.

From 88 degrees to 188 degrees C. the vulcanization effectiveness of ordinary sulphur (Sλ) is remarkably little different from that of Sπ or Sμ.

[1] By D. F. Twiss and F. Thomas. Read at a meeting of the Birmingham, England, section of The Society of Chemical Industry, November 27, 1923.

[2] *India Rubber Journal*, 1921, 62, 63.

[3] *Journal of the Society of Chemical Industry*, 1922, 87T and 88T.

Self-Arresting Accelerators[1]

It is found that under special conditions an accelerator of the type described below can be employed with a mixture of rubber, sulphur and other compounding ingredients if desired, causing vulcanization to come to an abrupt end at any desired stage. A large excess of sulphur can be used but under the conditions chosen the sulphur is inert as soon as the desired degree of vulcanization is reached. The rubber or rubber compound therefore attains a definite physical condition which is not appreciably altered even if the cure be extended, accidentally or otherwise, to many times the necessary period. The tensile strength of the products is superior to those obtained from similar mixings at ordinary vulcanizing temperatures.

The new type of accelerator consists of a suitable quantity of zinc or cadmium propyl xanthate or other of the series of zinc or cadmium alkyl xanthates, such as zinc methyl, ethyl, butyl or amyl xanthates and the corresponding xanthates of cadmium. It is employed at temperatures preferably between 60 and 110 degrees C., but not exceeding 130 degrees C.

The use of these materials in suitable quantities at these temperatures is said to avoid the danger of over-vulcanization, for under these conditions vulcanization will take place rapidly to a definite extent and then cease even in the presence of a considerable excess of residual sulphur. The resulting product has physical characteristics markedly superior to those of products obtained from the same rubber compound vulcanized at ordinary vulcanizing temperatures between 130 and 160 degrees C.

The following examples of rubber mixings in parts by weight would effect the desired purpose:

Rubber	51¼
Sulphur	5
Zinc oxide	20
Light calcined magnesia	1
Gas black	18
Paraffin wax	3
Zinc propyl xanthate	1¼
	100

Rubber	55½
Sulphur	5
Zinc oxide	20
Gas black	18
Zinc ethyl xanthate	1½
	100

In the above mixings vulcanization at 98 degrees C. leads, within 20 minutes, to a product containing approximately 3½ per cent of free sulphur and with a coefficient of vulcanization of about three. Even after a further 2½ hours heating, the proportion of free sulphur, the coefficient of vulcanization and the physical characteristics remain substantially unaltered from the condition at the end of the 20 minutes cure.

In an actual case the tensile strength after 20 minutes cure and after 150 minutes cure showed the same, namely, 2.4 kg. per square mm. The elongation under a load of 0.5 kg. per square mm. was also the same, namely 200 per cent.

Similarly when a mixture of

Rubber	90
Sulphur	10
Zinc oxide	1
Zinc propyl xanthate	1.1

is heated for 20 minutes at 118 degrees C. the product has a coefficient of vulcanization of about 3.3 per cent, which does not increase further even on extending the time of heating to 120 minutes. In an actual experiment the tensile strength after the shorter and longer heating was 1.8 and 1.7 kg. per square mm. respectively; the elongation under a load of 5 kg. per square mm. was 550 per cent for both.

[1]Dunlop Rubber Co., Ltd., 1 Albany street, Regents Park, London; and D. F. Twiss. British patent No. 204,757.

The Vulcanization of Rubber Latex[1]

By W. C. Davey

This paper on the vulcanization of latex is condensed to procedure and summary.

The vulcanization of rubber while still in the form of globules in the latex is a comparatively recent development. It can, however, be brought about by the hot sulphur process.[2] The experiments detailed in this paper were carried out with the object of systematically investigating this phenomenon. Preserved latex from *Hevea brasiliensis* was used throughout, the ammonia preservative being usually present to the extent of about 1 per cent of ammonia water.

Procedure

The sulphur was weighed out into a mortar and then a few drops of 0.880 ammonia were added. This was followed by a little water and the mixture ground down to a thick cream. The latter was then mixed into the latex previously strained through three thicknesses of butter muslin. For satisfactory vulcanization it is necessary for the sulphur to be thoroughly wetted. It has been found that the ammonia assists in doing this, although the amount used is insufficient to influence the rate of vulcanization appreciably.

In the experimental work detailed here the vulcanization was carried out in beakers, usually of 500 c.c. capacity, allowing ample space should any frothing occur. The ordinary steam pan vulcanizer was used, the beaker being covered by an inverted crystallizing dish or evaporating basin to prevent any condensed steam falling in. To ensure the uniform heating of the latex mixture during cure a gradual rise to the desired temperature in, say, 10 minutes was given; also, at the end of the curing period the blow-off was always carried out slowly, usually in 20 minutes. A rapid blow-off may cause the latex to froth over.

Cures were carried out at 141 degrees C. (40 pounds steam). Any water used in the preparation of mixes contained 1 gram of ammonia water per liter.

Summary

1. Rubber can be vulcanized in latex form by the hot sulphur process. Coagulation does not take place under normal conditions. The rubber can be isolated from the latex after curing by various methods of coagulation and is proved to have undergone vulcanization by chemical and physical tests.

2. The rate of vulcanization shows retardation as the time of cure is increased.

3. Different kinds of sulphur vary as regards their vulcanizing activity, "colloidal" sulphur being more active than precipitated, and the latter than flowers. The difference is probably due to their differing degrees of fineness.

4. Vulcanization can be brought about by liquid polysulphides, the course of change being similar to that with elementary sulphur.

5. The rate of vulcanization is not proportional to the sulphur content, larger quantities being relatively less active.

6. Dilution has in general a slight retarding effect.

7. Ammonia exerts a slight retarding action.

8. The attempt to accelerate with small amounts of the usual inorganic accelerators was unsuccessful, but zinc oxide in the form of hydroxide dissolved in excess of ammonia acts as a promoter.

9. The usual organic accelerators are, in general, less effective at high temperatures than in dry rubber mixes, but at suitable low temperatures they may display almost "ultra-acceleration."

10. There was no marked difference in the amounts of coagulant required before and after vulcanization. With dilute calcium chloride and acetic acid solutions vulcanized latex coagulated more quickly than unvulcanized.

[1]*Journal Society Chemical Industry*, London, December 14, 1923.
[2]P. Schidrowitz, British patent No. 193,451.

Chemical Patents

The United States

THIOCARBANILIDE DERIVATIVE. The thiourea derivatives constituting the product formed by the simultaneous reaction of carbon bisulphide and hydrogen sulphide on a paranitroso body. The method of preparing a thiourea derivative which comprises dissolving a paranitroso body in a solvent containing an excess of carbon bisulphide and passing hydrogen sulphide into the solution.—Clayton W. Bedford and Robert L. Sibley, assignors to The Goodyear Tire & Rubber Co., both of Akron, Ohio. United States patent No. 1,477,803.

METHOD OF VULCANIZING RUBBER. The method which comprises vulcanizing rubber with an admixture of a vulcanizing agent and potassium glycero phosphate.—H. A. Winkelmann and Harold Gray, Akron, Ohio, assignors to The B. F. Goodrich Co., New York, N. Y. United States patent No. 1,478,088.

MANUFACTURE OF RUBBERIZED FABRIC. The method of producing a fixed glossy finish on rubberized fabric which comprises the steps of preparing the rubberized fabric with a dusting of starch, partially curing the fabric in a sulphur chloride vapor, and completing the cure with a solution of sulphur chloride in the liquid phase.—James Meade, Stoughton, Massachusetts. United States patent No. 1,479,394.

METHOD OF FORMING HOLLOW INFLATED RUBBER ARTICLES. Method of expanding hollow rubber articles during vulcanization by a dry mixture containing ingredients which will react to form a gas in the presence of water supplied from an ingredient containing water of crystallization, when heated, and an inert material which will protect the mixture from the action of the moisture in the atmosphere.—Robert C. Dabney, assignor to The Miller Rubber Co., both of Akron, Ohio. United States patent No. 1,480,376.

The United Kingdom

METHOD OF MAKING RUBBER THREAD. A solution of rubber is treated with one vulcanizing gas, for example, a solution of sulphur dioxide or sulphuretted hydrogen, and squirted to form filaments which are then subjected to the action of a second vulcanizing gas. The second gas may be cooled to retard the rate of vulcanization. The filaments may be formed into threads before or during treatment with the second gas.—M. Draemann, 2, Von Sandplatz, Cologne, Germany. British patent No. 204,803.

VULCANIZING ACCELERATOR. A vulcanizing accelerator consists of the material formed by the reaction of zinc or cadmium sulphate and ammonia with the addition of zinc oxide. Example: To a mixing of 48 per cent rubber, 49 per cent fillers, and 3 per cent sulphur is added 1 to 2 per cent of the rubber of a mixture of equal proportions of penta-amino zinc sulphate and zinc oxide, and the mixing is vulcanized in 20 minutes at 40 pounds steam pressure.—H. Skellon, 127A, Manchester Old Road, Middletown, Lancashire; T. H. Roberts, Isbells, Reigate, Surrey, and H. B. R. Clarke, Lincluden, Radlett, Hertfordshire. British patent No. 204,902.

ARTIFICIAL SILK. India rubber, etc., is extruded to form filaments which are associated into threads to form artificial silk. The rubber may be in the form of solution, latex, masticated dough, or a vulcanized gel. The rubber, when not in gel form, is preferably vulcanized at the same time or following the formation of the artificial silk. Vulcanization may be effected by adding vulcanizing ingredients to the dough, solution, etc., and extruding under conditions which effect vulcanization, or the rubber may be treated with one vulcanizing component prior to extrusion, and with another subsequently, or the filaments may be led through a bath or atmosphere containing sulphur monochloride. Substances such as gutta percha, balata, or vulcanized oil may be added to the rubber solution or dough, which may also be dyed.—H. H. Marriott, Hackbridge Park, Hackbridge, Surrey. British patent No. 205,532.

PRESERVING LATEX. Latex may be preserved by any of the three following materials, each of which is the subject of a patent:

Caustic soda, quick lime or slacked lime, or sodium carbonate, with or without known preservatives such as phenol, formaldehyde, or ammonia, is added to the latex to prevent coagulation.—N. S. Bostock, Aiken Spence & Co., Colombo, Ceylon. British patents 206,163, 206,164, and 206,165.

The Dominion of Canada

PROCESS OF MANUFACTURING DIPHENYLGUANIDINE. A process which comprises combining the following ingredients in approximately the proportions stated, thiocarbanilid 1,500 pounds, zinc oxide 675 pounds, strong aqueous ammonia 3,000 pounds, maintaining the temperature of the mixture at approximately 70-80 degrees C. until the thiocarbanilid is substantially desulphurized, removing the excess of ammonia, and recovering the material resulting from the reaction.—Canadian Consolidated Rubber Co., Limited, Montreal, assignee to Harold S. Adams and Ludwig Meuser, both of Naugatuck, Connecticut. Canadian patent No. 236,465.

PREPARATION OF REACTION PRODUCTS OF ACETALDEHYDE AND ANILINE. A process for preparing the reaction product of acetaldehyde and aniline which comprises preparing 1,500 parts by weight of an aqueous solution containing 12.1 parts of anhydrous sodium acetate and 9.2 parts of glacial acetic acid, absorbing thereby 1,760 parts by weight of acetaldehyde, adding 1,500 parts of aniline to the solution, maintaining the temperature at 40-50 degrees C., and distilling the resulting product at 140 degrees C., approximately to rid the product of aniline.—The Canadian Consolidated Rubber Co., Limited, Montreal, assignee of Sidney U. Cadwell, Leonia, New Jersey. Canadian patent No. 236,466.

ACCELERATOR OF VULCANIZATION DEFINED

"We may define an accelerator, and more especially an organic accelerator, as any compound which when added to a rubber-sulphur mix will reduce the time necessary to effect vulcanization and at the same time produce a product having increased physical properties.

"The chief aim in the early development of accelerators, inorganic as well as organic, was to reduce the time of vulcanization; whereas in more recent years accelerators are chosen not only upon the ground of time saving in the vulcanization process but also on the basis of added physical properties."—Dr. L. B. Sebrell, *Systematic Survey of Rubber Chemistry*. By Bedford and Winkelmann.

BLACK KNIGHT CARBON BLACK

Black Knight brand of carbon black is a standard channel gas black made with every precaution to insure the uniform high quality which renders it unexcelled for the use of rubber manufacturers. It has all the qualities which make carbon black most generally acceptable to American rubber manufacturers.

"BRIGHTING" LITHOPONE

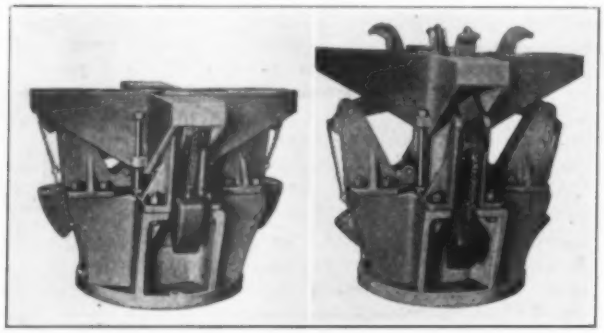
A grade of lithopone specially prepared for use in the manufacture of white rubber goods is being offered to the industry under the registered trade designation of "Brighting." This lithopone not only has ample covering capacity as a pigment but possesses exceptional brightness as well. When used in colored rubber this quality enhances the colors employed to marked advantage.

REPLETE WITH INFORMATION FOR RUBBER MANUFACTURERS—H. C. Pearson's "Crude Rubber and Compounding Ingredients."

New Machines and Appliances

Perfected Tire Rimming Press

A new style tire rimming press is here pictured in open and closed positions. It possesses some distinct practical advantages over the ordinary rimming presses. The arrangement which permits a clear table for loading and unloading and the application of pressure, whether water, air or steam, operates and engages the arms so that one man can rim many more tires a day than two are able to do on the rigid head type press. The new press is built both three and four-arm type.—Adamson Machine Co., Akron, Ohio.



CLOSED OPEN

Adamson Rimming Press

Heavy Duty Vacuum Cleaner

A new heavy duty portable vacuum cleaner has recently been perfected for use in office buildings and rubber factories not equipped with stationary vacuum cleaner service, as well as for auxiliary service in such buildings. The natural tendency for dust to settle everywhere in rubber plants, to the injury of machinery and goods in process or stored would seem to make this machine a very desirable addition to rubber factory equipment.

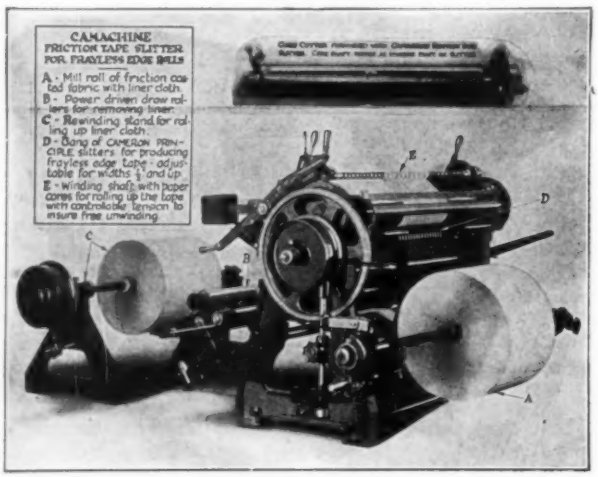
Westinghouse Portable Vacuum Cleaner and Accessories

The construction and operation of the cleaner are simple. A horizontal fan, revolving on a shaft driven by a ⅝ h. p. motor, draws the refuse through the nozzle and into the separation chamber. Here a metal screen separates the heavy dirt and litter from the finer dust. The heavy dirt drops into a drawer at the bottom of the chamber, while the dust passes through the screen and out of the chamber into two dust bags mounted at the rear. The lower of these bags catches the heavier dust, while the upper one is filled with the lighter particles. The bags are open at one end only and are easily detachable when it becomes necessary to empty them.

The machine is mounted on two 30-inch rubber tired disk wheels and may be operated in a 75-foot radius from any electric connection. It is only 48 inches high, 30 inches wide, and 36 inches long, so that it may be moved in narrow aisles and carried in elevators. The weight of the truck, without accessories, is 280 pounds. It is furnished with 25 feet of light hose, a 42-inch aluminum or steel handle, and five tools for special use in cleaning carpets.—Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pennsylvania.

Slitting and Winding Machine for Friction Tape

Manufacturers of friction tape will appreciate the machine here pictured because of the speed and perfection which characterize its product. The old method of lathe cutting friction tape stock produces rolls poorly cut with plies generally mashed together on the edges. Such rolls are certain to fray at the edges when unwound, causing much annoyance by tearing and waste when the tape is used.


CAMACHINE
FRICTION TAPE SLITTER
FOR FRAYLESS EDGE ROLLS
A - Mill roll of friction coated fabric with liner cloth.
B - Power driven draw rollers for removing liner.
C - Rewinding stand for rolling up liner cloth.
D - Gang of CAMERON PRINCIPLE slitters for producing frayless edge tape - adjustable for widths ½ and up.
E - Winding shaft with paper cores for rolling up the tape with controllable tension to insure free unwinding.
A
B
C
D
E

Cameron Friction Tape Machine

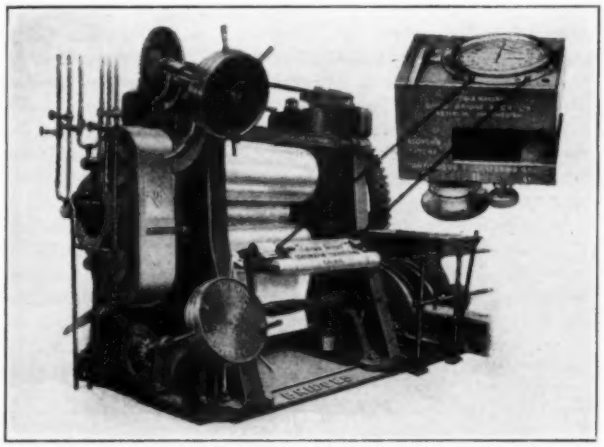
The Cameron friction tape machine produces absolutely clean cut rolls free from frayed or ragged edges, introducing the Cameron principle of score-cutting into a machine specially designed for the purpose.

The cutter wheels which slit the web of frictioned fabric into strip are easily and quickly adjusted for varying widths of finished rolls from one half inch up to the capacity of the machine. Only one wheel is used per cut and the cutters being constructed of special alloy steel require a minimum of attention and give perfect results. They are not sharp edged, and will often operate for weeks without conditioning.

The machine will run continuously at high speed, making possible large quantity production of perfect rolls of tape which will unwind without inconvenience or waste.—Cameron Machine Co., 61 Poplar street, Brooklyn, N. Y.

Continuous Thickness Gage for Calenders

The importance of uniformity of thickness from edge to edge in calendered sheet stock is such that continuous gaging is desirable. The illustration shows a special sheeting calender provided at each side with a gage whose automatic indications of the thickness of the edges of the sheet constantly furnish the calender operator with exact information as to the need of alterations in calender roll adjustment. The insert shows separately one of the gages slotted to receive the edge of the goods. Variations of thickness are shown on the dial. Continuous gaging is particularly desirable in the case of sheet rubber for covering cables and for other purposes where exactness of gage is required.—David Bridge & Co., Ltd., Castleton, Manchester, England.



Glover's Calender Gage

Electric Contact Temperature Controller

A new temperature controller developed as an addition to the well-known Tagliabue line of apparatus is here pictured.

Tagliabue Temperature Controller

This electric contact controller consists essentially of a dial-indicating thermometer, the pointer of which is actuated by the usual mercury, vapor-tension, or gas-filled thermostatic system, depending on the desired range and other specifications. The bulb stem is inserted in the oven, furnace, tank or other apparatus where the temperature is to be controlled and is connected by a capillary tube to the case, which can be mounted at any convenient location. As the temperature at the bulb increases or decreases, the thermostatic spring uncoils or recoils, thus moving the pointer across the scale. The exact temperature existing at the bulb is thus indicated at the case and the responsiveness and closeness of the control may be determined.

By means of a bi-metallic strip interposed as a link between the spiral spring and the spindle of the indicating pointer, fluctuations in temperature at the case of the instrument are corrected automatically. This compensating device is identical with that used in TAG recording thermometers.

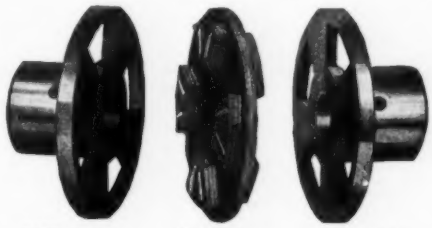
The controller may also be used for starting and stopping a motor by means of a motor starter, as in the case of an automatic refrigerating unit.—C. J. Tagliabue Manufacturing Co., 18 to 88 Thirty-third street, Brooklyn, N. Y.

Grundy Flexible Coupling

The flexible insulated coupling here illustrated is especially adapted for light duty service such as motor generator sets, connecting motors to pumps, machine tools, wood working machinery, printing presses, fans, blowers, shafting to angle drives, etc.

It consists of two outer flanges of cast iron which can be either keyed or set screwed, or both, and one central leather disk with lugs securely cemented and riveted on each side for transmitting the power to the outside flanges.

The close connection made possible by this style of coupling reduces to a minimum the leverage which is so objectionable on the old style pin couplings and requires less space on shafting than other flexible couplings.—Charles Bond Co., 617-619 Arch street, Philadelphia, Pennsylvania.



Parts of Grundy Coupling

Industrial Truck Tractor

The illustration pictures the smallest industrial truck and tractor ever built. It is known as the "Duat" and is a compact, three-wheeled gasoline powered mobile crane, truck and tractor. It pivots on one wheel and has a turning radius of but 52 inches.

Clark "Duat" Tructractor

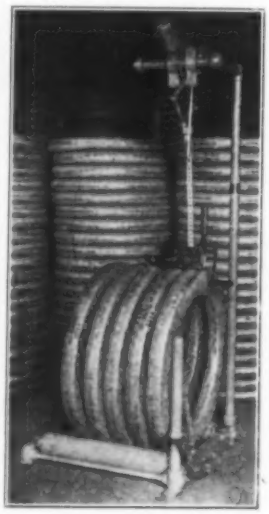
It turns around in a box car and serves as a general utility haulage unit with power to tow from seven to ten tons.

The crane attachment will lift and carry loads up to 2,000 pounds. A brake device permits carrying the load at any height up to 56 inches, lowering it at will. The wheels are solid rubber tired. Under the driver's seat is a safety brake which automatically stops the machine when the driver dismounts.—Clark Tructractor Co., Buchanan, Michigan.

Tire Bundling Machine

A small wire tying machine and portable stand designed for bundling paper-wrapped tires is here illustrated.

Its operation is very expeditious. The tires to be bundled are placed on the rollers in the base of the stand. The counterbalanced tying machine is drawn down to position on the bundle, a tie wire inserted and its flat end caught in a holding notch; the other end is passed through the bundle and into the machine, overlapping the first end. The slack is taken up by working the top lever. When sufficiently taut the tie is effected by two turns of the hand crank.



Gerrard Wire Tying Machine

The knot is a twisted splice formed by the action of a small twisting gear located between the overlap of the wire, and geared three to one. It thus puts six twists into the splice. The surplus end of wire is cut off automatically. The work of tying tires into bundles is done very speedily, neatly and securely, three ties being applied in a minute.

The sale of these machines being entirely withheld from transportation companies serves a practical insurance against the theft of tires from the bundle since there is no device that can duplicate the twisted splice knot employed. Wire-tied bundled tires are more easily handled than burlaped bundled and practical tests have shown that the tires are not damaged in transportation.

The tying machine is equally adapted to wiring box covers, eliminating nails and holding more securely.—Gerrard Wire Tying Machine Co., Inc., 75 Bush Terminal, Brooklyn, N. Y.

Machinery Patents

Machine for Joining Rubber

A compact power driven bench machine designed to apply lines of close indentations to superposed edges of rubber or rubberized fabric in imitation of stitching is shown in Figure 1.

The mechanism is supported on a base A and comprises a pivoted lever B carrying on its outer end a freely revolving knurled disk C. At the rear of the base mounted in a bracket is a driving shaft D provided with a belt-driven pulley E. An eccentric pin at the inner end of the driving shaft causes the pivoted lever F to vibrate and transmit blows to lever B. Thus the knurled disk C receives a rapid vertical vibratory motion.

In stitching the outsole to the upper of a lasted rubber shoe the operator presses the shoe upwardly against the toothed wheel C which vibrates and imparts the stitching impression to the edge of the sole.—T. B. Heustis, Assignor to National India Rubber Co., both of Bristol, Rhode Island. United States patent No. 1,462,859.

Tire Stripping Apparatus

Solid tires are removed from the metal base or rim by the machine shown in Figure 2.

Upon base A is mounted motor B with gearing and clutch for operating the gripping and rotating mechanism located on the column C. The gripper unit comprises a pair of brackets D, D, which are mounted on individual shafts E, E, one above the other for swinging movement in a vertical plane. The contiguous ends of these brackets are provided with toothed segments which are constantly in mesh, serving to insure simultaneous and uniform movement of the brackets. Mounted on the free ends of these brackets are individual gripper rollers, F, F, which grip the rubber of the tire and strip it from the metal rim.

In operation the tire, G, is suspended from the gripper rollers F, so that the weight materially assists them in the stripping operation. The tire is cut transversely and one end is disconnected and placed between the rollers F. The operator bends the cut portion of the tire back upon itself and guides it against the rollers between which it is seized. Rotation of the rollers lifts the tire vertically, and in this position the weight of the tire pulls

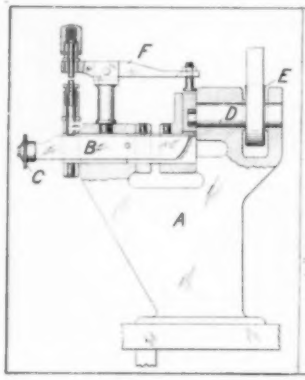


Fig. 1. Mechanical Stitcher

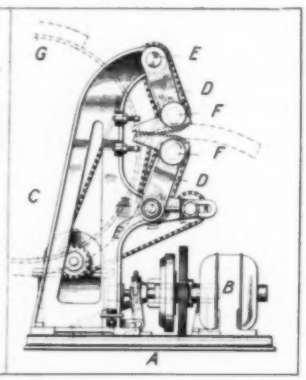


Fig. 2. Solid Tire Stripper

the metal rim away from the rubber, while the continuous pull of the rollers exerted in opposite direction produces the same effect.—W. C. Stevens, Assignor to The Firestone Tire & Rubber Co., Akron, Ohio. United States patent No. 1,462,524.

The following descriptions refer to the group of machines shown on the next page.

TIRE PAINTING MACHINE. A machine for spraying with lubricant the inside of an automobile tire casing is here shown.

The machine is mounted upon a stand connected with a motor by chain belt.

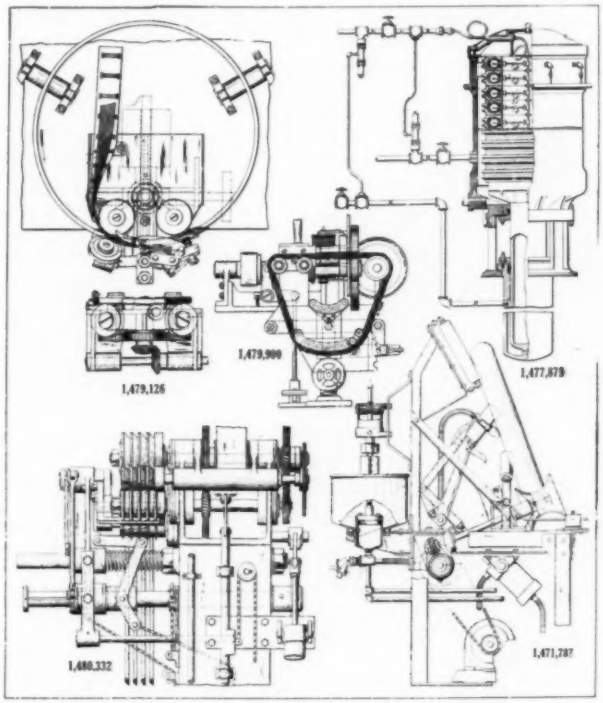
The tire casing revolves inclined on a pair of grooved rollers, one of which is driven and is supported or guided at the top and sides on flat idler rollers. An air pressure piping system sprays the paint material into the tire casing as it is spread open while revolving.—J. R. Gammeter, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y. United States patent No. 1,471,787.

SYSTEM OF CONTROL FOR VULCANIZERS. This invention affords means for supplying hydraulic and pneumatic pressure and heating fluid to the press vulcanizer which preclude the operation of the various sources of supply except in a prescribed sequence, and the control system automatically releases the heating fluid from the vulcanizing chamber when either the air or the hydraulic pressure fails. As illustrated, the system is shown applied to a steam heated hydraulic vulcanizing press, into which air can be admitted to inflate tires in the molds contained in the press by means employed operably dependent on the hydraulic system of the press through the action of a specially contructed control

valve.—Karl B. Kilborn and Walter Shively, assignors to The Goodyear Tire & Rubber Co., all of Akron, Ohio. United States patent No. 1,477,879.

RING COVERING APPARATUS. This machine applies a rubberized bias strip covering wholly or partly the triangular bead cores of a tire. The bead core is driven by a knurled wheel past a guide plate through which a rubberized bias strip of fabric is twisted and fed upon it and applied to place without wrinkles by a wiping roller set at proper angle.—James L. Butler, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y. United States patent No. 1,479,126.

CABLED ENDLESS FAN BELTS.—The machine indicated herewith is a ring winder and applies to making endless machinery belts,



such as automobile fan belts, wherein the belt is formed by winding a rubberized cord helically about an endless core to make a grommet.

The machine provides for avoiding or reducing the amount of turning or rolling of a flexible annular ring upon its cross-sectional axis as it is propelled circumferentially in the grooved wheels as a strand is wound upon it. The rolling tendency is regulated and controlled by the large aggregate surface of contact with the work of a series of small rollers, thus reducing the tendency of core or partly wound belt to twist or roll upon its cross-sectional axis as it rotates circumferentially.

The workdriving roller rotates at a constant speed relative to that of the ring winder and is provided with teeth to prevent slippage of the work. The endless belt core is wound spirally at uniform regulated tension with rubberized cord.—John A. Dorner and Fred C. Francisco, both of Akron, Ohio, assignors to The B. F. Goodrich Co., New York, N. Y. United States patent No. 1,479,900.

ABRADING MACHINE. The machine here represented is designed for abrading or buffing the surface of rings such as vulcanized tire bead cores molded in triangular form with wire center, and rubber and fabric covered. The bead to be abraded is made to revolve vertically, guided on a series of rollers, between grinding wheels adapted to abrade respective faces of the work as the latter passes between them.—Robert R. Ambler and George F. Wilson, Akron, Ohio, assignors to The B. F. Goodrich Co., New York, N. Y. United States patent No. 1,480,332.

Other Machinery Patents

The Dominion of Canada

236,740 Apparatus for the manufacture of flat expansible bands. T. Sloper, Devizes, Wiltshire, England.

236,875 Gang cutter for sheet stock. The Canadian Consolidated Rubber Co., Ltd., Montreal, Que., assignee of H. Z. Cobb, New York, N. Y.

236,876 Tire shaping press. The Canadian Consolidated Rubber Co., Ltd., Montreal, Quebec.

The United Kingdom

205,554 Tire vulcanizing apparatus. Dunlop Rubber Co., Ltd., 1 Albany street, Regent's Park, London, and C. Macbeth, J. Mitton, and F. Broadbent, Fort Dunlop, Erdington, Birmingham.

Germany

Patents Issued with Dates of Issue

388,456 (July 10, 1920). Machine for reshaping flat tire covers. Ernest Hopkinson, New York, N. Y., United States; represented by: R. H. Korn, Berlin S. W. 11.

Design Patents Issued with Dates of Issue

859,150 (March 7, 1923). Apparatus for mass production of hollow rubber goods. Continental Caoutchouc-und-Gutta Percha Compagnie, Hannover.

860,205 (July 4, 1922). Apparatus for evaporating sulphur, for vulcanizing cabinets. Fritz Kästner, Kaiserstrasse 64, Leipzig-Lindenau.

Process Patents

The United States

1,478,480 Process of making tube mandrels. C. E. Lowe, Cleveland, Ohio.

1,478,576 Method of making rubber patch. H. A. Morton and M. M. Harrison, assignors to The Miller Rubber Co., all of Akron, Ohio.

1,479,148 Method of making packing. C. I. E. Mastin, Midland Park, New Jersey.

1,479,497 Process of attaching rubber soles to boots and shoes. D. A. Cutler, Atlantic, Massachusetts.

The Dominion of Canada

236,518 Process of making hollow rubber articles. T. Davis, assignee of W. A. Eggers, both of New York, N. Y., U. S. A.

Germany

Patents Issued with Dates of Issue

388,433 (March 28, 1922). Method of making rubber sheet for soles, heels and the like. Zome. G. m. b. H., Hamburg.

LUBRICANT FOR RUBBER MOLDS

An improved composition for use as a lubricant on rubber molds for the purpose of imparting a gloss finish to the surfaces of the molded article and to permit easy separation of the rubber from the mold has the following preferred composition. Ten ounces of solid soap are dissolved in 1 gallon of boiling water. Then 2½ ounces of borax are added and, after cooling, from 2 to 20 ounces of a concentrated ammonium salt solution are added. The mixture is then stirred until it becomes an emulsified mass. About an ounce of common salt in solid form is then added. The lubricant thus obtained has an oily thick consistency and may be sprayed by an atomizer such as is used for insecticide.—Arthur G. Voltz, Cleveland, Ohio. United States patent No. 1,462,563.

BALLOON TIRES FOR PRESENT STANDARD RIMS

The Rubber Association recommends the following sizes of balloon tires for oversizing on present rims of passenger cars: 31 x 4.40 for 30 x 3½; 32 x 4.95 for 30 x 3½ or 31 x 4; 33 x 4.95 for 32 x 4; 33 x 5.77 for 31 x 4 or 32 x 4½; 34 x 5.77 for 32 x 4 or 33 x 4½.

The Editor's Book Table

Book Reviews

"THE USE OF STATISTICS OF RUBBER GOODS EXPORTS." Trade Information Bulletin—No. 172. Prepared by the Rubber Division, Bureau of Foreign and Domestic Commerce, Washington, D. C. Paper, 10 pages, 6 by 9 inches.

THIS little publication has been prepared especially in the interests of the rubber manufacturer and exporter, and represents a plea for more accuracy in export declarations. It is stated that the government in preparing its statistics and compilations is absolutely dependent upon the returns made by manufacturers and exporters, and it is hoped that by the use of a better system of export declarations some of the most glaring of the clerical errors of the past may be avoided. A glossary of all rubber articles, with numbers accompanying, has been prepared by the rubber division, as well as a more suitable form of blank for general export and postal export declarations.

"A. S. T. M. SPECIFICATIONS AND METHODS OF TEST FOR Textile Materials." Prepared by Committee D-13 on Textile Materials. American Society for Testing Materials, 1315 Spruce St., Philadelphia, Pennsylvania. Paper, 80 pages, 6 by 9 inches. Illustrated.

This authorized pamphlet contains the methods of testing, definition of terms and specifications for textile materials developed by the A. S. T. M., and a selection from reports and papers relating thereto that have appeared in the society's "Proceedings." This reprint is of much importance to all who deal with textile materials because it makes available the practical results of years of research by experts in the manufacture and use of textile materials used for mechanical purposes.

The first section of the book contains Standard General Methods of Testing Cotton Fabrics, with tentative revisions, and six other tentative specifications as follows: Imperfections and Tolerances for Square-Woven Tire Fabrics; Imperfections and Tolerances for Cord Tire Fabrics; Tolerances and Test Methods for Cotton Yarns and Cords; Tolerances for Hose Ducks and Belt Ducks; Methods for Testing Cotton Fibers; and Definitions of Terms Relating to Textile Materials.

The second section contains reports and papers bearing the following titles: Variables Affecting the Indicated Breaking Strength of Cotton Fabrics; Effect of Machine Capacity on Apparent Strength of Textiles; Comparison of Strip and Grab Methods of Testing Textile Fabric for Tensile Strength; Determination of Textile Strength of Duck by the Strip Method; Effect of Unbroken Warp Threads on Tensile Strength of Textile Fabric; Effect of Moisture on the Textile Strength of Fabrics; Effect of Moisture on Fabric Strength; Effect of Moisture on Gummed Cloth Tape; Variation in Strength of Textiles at Various Moisture Regains, with Relation to the Weight of the Fabric; Table of Corrected Tensile Strengths of Fabric and Yarn at Various Moisture Regains; Identification of Manila Fiber.

The volume concludes with the regulations governing Committee D-13 and the personnel of the committee and its sub-committees.

"A GRAPHIC ANALYSIS OF THE CENSUS OF MANUFACTURERS of the United States—1849 to 1919." Published by the National Industrial Conference Board, 10 East 39th street, New York, N. Y. Cloth, 253 pages, 9 by 11 inches.

In this volume the National Industrial Conference Board has endeavored to make available to the industries of the country the large fund of information collected by the United States Government through the taking of its periodical Census of Manufactures. Much valuable data regarding size of establishments, number of operatives, value of products, power and fuel used, etc., have been here summarized, while statistical tables and colored graphs are of assistance in visualizing the whole. Rubber manufactures occupy a position of importance, while an outline regarding power installations in rubber factories is a feature of importance.

"PROCEEDINGS OF THE TWENTY-SIXTH ANNUAL MEETING OF the American Society for Testing Materials," 1923. Published in two volumes by the A. S. T. M., 1315 Spruce Street, Philadelphia, Pennsylvania. Volume 23, Part I, 1006 pages. Part II, 683 pages, Illustrated.

Each succeeding volume of these publications shows a gain in both bulk and technical value over its predecessor. The publication has long been indispensable to engineers, chemists, and technologists in every branch of industry.

Part I contains the annual report of thirty-two of the standing committees of the Society, together with the discussion thereon at the annual meeting, and 103 tentative standards which have either been revised or are published for the first time; the annual address of the president and the annual report of the executive committee.

Part II contains 50 technical papers with discussion.

The technical papers contain valuable information on results of investigations by experts in the field of engineering materials and the reports of the committees cover ferrous and non-ferrous metals, cement, ceramics, concrete, gypsum, lime, preservative coatings, petroleum products, road materials, coal and coke, waterproofing materials, electrical insulating materials, shipping containers, rubber products, textile materials, methods of testing, and nomenclature and definitions.

Recent Articles Relating to Rubber

The Vulcanization of Rubber Latex. This procedure is given for hot vulcanization of rubber latex, the progress of which was followed (1) by determination of combined sulphur, (2) by resistance of the rubber to the solvent action of benzene, (3) by physical tests. The influences of the following factors are discussed: Time of cure, nature and amount of sulphur, liquid vulcanizers, dilution, effect of ammonia, organic accelerators, coagulation and pigments.—W. C. Davey, Chemistry Department, Northern Polytechnic Institute, London, England. *Journal Society Chemical Industry*, London, December 14, 1923, 474T-484T.

Acceleration of Vulcanization by Xanthates and Influence of Metallic Oxides as Promoters. Results of experimental investigation of xanthates showing that the use of accelerators of this class are most powerful and enable rapid vulcanization to be effected even at 78 degrees C. giving better products at that temperature than at 148 degrees C. Adjustment of the proportion of zinc alkylxanthate provides a ready means of ensuring any desired degree of vulcanization.—D. F. Twiss and F. Thomas. *Journal Society Chemical Industry*, London. December 28, 1923, 499T-505T. Tables and graphs.

An Important Variable in Raw Rubber. Experimental results on the extent of prolongation of the optimum portion of the tensile strength curve are an important feature, variability in regard to which has been almost completely overlooked in connection with plantation rubber. Prolonged optimum cure can be induced in plantation rubber if prepared under suitable conditions.—D. F. Twiss and F. B. Jones, *Journal Society Chemical Industry*, London, December 28, 1923, 505T-508T.

Some New Salts of A-Phenylbiguanidine as Accelerators of Vulcanization. (French.) Data on the chemistry, constitution and comparative accelerating value of a series of new salts of which zinc-*a*-phenylbiguanidine was found most active as an ac-

celerator.—Egidio Romani, *Le Caoutchouc et la Gutta-Percha*, December 15, 1923, 12005-8.

Adsorption, Absorption and Diffusion of Gas in Raw and Vulcanized Rubber and Balloon Tissues. (French). A review of the results reported by various investigators, including the author.—A. Dubosc, *Le Caoutchouc et la Gutta-Percha*, December 15, 1923, 12009-10.

On the Constitution of Vulcanized Rubber. (French.) Serial article. Review of the theories of vulcanization. Swelling effect on rubber of different degrees of vulcanization on long exposure to various solvents.—F. Boiry, *Le Caoutchouc et la Gutta-Percha*, December 15, 1923, 12010-12. Graphs and tables.

Progress in the Chemistry of Rubber. (French.) Abstract of paper covering work done on vulcanization by B. V. Bysow and his collaborators, M. and K. Popowa as published in the Journal of the Russian Physico-Chemical Society.—*Le Caoutchouc et la Gutta-Percha*, December 15, 1923, 12019-21.

How Qualities of Coated Automotive Fabrics Are Determined. Parts I and II. Details of methods for testing coated automotive fabrics both single and double texture, including weather proofing, anchorage of rubber to the goods, physical tests on rubber, aging of goods, fold test, etc.—Ernest B. Benger and N. M. Nickowitz, *Automotive Industries*, December 20 and 27, 1923, 1262-66 and 1305-08. Illustrated.

Testing with the Mullen Tester. Index value of woven and knitted fabrics. Tests on hosiery.—C. J. Burkley, *Textile World*, New York, January 5, 1924, 95. Illustrated.

The Analysis of Organic Rubber Vulcanizing Accelerators. Announcement of methods for identifying and estimating a large variety of accelerators mostly by volumetric determinations using ordinary standard solutions. The authors have also determined the physical constants of a number of purified compounds and their derivatives used as accelerators.—T. Callan and N. Strafford, *Rubber Age*, London, January, 1924, 614.

Methods to Be Adopted in Comparing Activity of Various Accelerators. Classification of accelerators and discussion of factors affecting the activity of accelerators in the mix, potency of accelerators and vulcanization coefficients. It is advised to retain the acceleration factor for one per cent concentration of the accelerator in the rubber, and to give the conditions under which it has been determined. Physical methods of measuring the rate of cure give longer values for the acceleration factor than the chemical method. The two sets of values appear to be interrelated.—G. C. Martin, *Rubber Age*, London, January, 1924, 609-614.

The Measurement of Temperature in Pneumatic and Solid Tires During Cure. Methods and results of measuring internal temperatures by means of insertion of thermo-junctions as developed in the research laboratories of the Dunlop Rubber Co.—Alfred A. Perks and Reginald W. Griffiths, *India Rubber Journal*, London, January 5, 1924, 13-21. Illustrations and graphs.

The Use of Rubber Latex in Paper Manufacturing. English abstract of Dutch paper by Miss Jenny Beckering Vinckers from De Textielindustrie, November 1, 1923. Data on quality and tests of paper containing rubber.—*Bulletin Rubber Growers Association*, December, 1923, 688-89.

Aging Properties of Sprayed Rubber. Experimental results indicating that sprayed rubber is superior to other forms when compounded with sulphur and aged artificially. Full discussion is reserved until further tests have been made. H. P. Stevens, *Bulletin Rubber Association*, December, 1923, 697-700.

Reactions of Accelerators During Vulcanization—VI. Metallic oxides and organic acids, both of which have long been known as accelerators for vulcanization by sulphur or aromatic nitro compounds, are described as inactive, one without the other. The natural or added acids in rubber dissolve the inorganic accelerators to form metallic soaps. Solution of the metallic radical in the rubber is a prerequisite to its action as an accelerator.—C. W. Bedford and H. A. Winkelmann, *Industrial and Engineering Chemistry*, January, 1924, 32-34.

Latex and Rubber of Transplanted Trees. It is generally believed that the inner qualities of rubber are adversely influenced if the trees are placed in unfavorable surroundings. Tests have shown, however, that neglect of soil upkeep does not affect the properties of the rubber; very heavy tapping systems produce rubber that cures more rapidly and has a rather low viscosity but tensile strength and slope are unchanged. Even tapping to the wood or on a piece of bark isolated by deep cuts around it, or pollarding trees at a height of 6 to 8 feet, has been found to leave the quality of the rubber practically normal.—Dr. O. de Vries. *Archief voor de Rubbercultuur in Nederlandsch-Indie*, November, 1923, 492-494.

Weathering of Crêpe (Dutch). Attention is called to a defect in crêpe rubber that at first sight seems to be a grayish mold. Closer examination shows that this is not mold but is caused by weathering, which takes place in drying rooms not properly closed at night so that the damp night-air penetrates the crêpe sheets, making them moist. During the day they dry again and eventually the typical discoloration is the result.—Dr. O. de Vries. *Archief voor de Rubbercultuur in Nederlandsch-Indie*, November, 1923. 473-74.

Latex for Sticking Plaster (Dutch). In preparing sticking plaster the difficulty in combining rubber and other ingredients is removed by using the following formula: yolk, 8, latex 5, colophony (resin) 0.250, yellow wax 2, zinc oxide 2. The latex is mixed with the yolk previously melted over a water bath and heated; meanwhile stirring is continued until the water has evaporated and an elastic mass is obtained. This is now repeatedly kneaded under water to remove the serum constituents. After drying, the mixture of yolk and latex is combined with the other ingredients.—Hollman and Van der Wielen, *Pharmaceutisch Weekblad*, 1923. 60. 974.

Appreciation of New Methods in Rubber Cultivation. (Dutch). Discussion of new methods in care of soil, tapping, bud-grafting, rubber in latex form, sprayed rubber.—Dr. R. Broersma, *Algemeen Landbouw-weekblad voor Nederlandsch-Indie*, November 10, 1923, 592-596.

Some Factors Affecting the Rate of Vulcanization of Plantation Rubber. R. O. Bishop, *The Malayan Agricultural Journal*, November, 1923, 310-334. Tables, diagram, bibliography.

New Trade Publications

A UNIQUE PLAN OF SERVICE TO MANUFACTURERS WHICH IS OF interest to the rubber industry has been recently initiated by the Cameron Machine Co., 61 Poplar street, Brooklyn, New York. This organization specializes in the manufacture of slitting and roll-winding machines, winders and rewinders, and postal cards illustrating various phases of the service rendered by the Cameron types of equipment are now being sent each week to those interested.

THE NOVEMBER ILLUSTRATED BULLETIN ENTITLED, "LABORATORIES' Data," issued by Underwriters' Laboratories, 207 East Ohio street, Chicago, Illinois, is headed by a tribute of respect to the late William H. Merrill, president and founder of the organization. Following this is a personal sketch of Dana Pierce, the new president, while other articles and items help to make the bulletin an interesting one.

A PUBLICATION CONSISTING OF 87 PHOTOGRAPHS, AND ENTITLED "The Rubber Cultivation on the East Coast of Sumatra," has been recently prepared by J. H. Croockewit, Bosschestraat 101, Scheveningen, Holland. In this photo-album the whole story of the rubber industry in that section of the world is told, beginning with the felling of the jungle by the pioneer rubber planter, and con-

cluding with the shipment of his product to Europe. The photographs, each measuring 5½ by 3¼ inches, were taken by the author.

DE MATTIA BROS., GARFIELD, NEW JERSEY, HAS ISSUED A linen-backed wall-hanger that contains valuable information for manufacturers of cord tires. The chart includes decimal equivalents, standard tire sizes and rim dimensions, government specifications, standard rim sections, automatic chuck data, and tire curing pressures and temperatures. As a ready reference to important tire data this hanger is unique.

A SERIES OF MONOGRAPHS IN REGARD TO THE RUBBER INDUSTRY IN leading countries of the world has been issued during recent months by the Rubber Division, Bureau of Foreign and Domestic Commerce, Washington, D. C. Included among these publications are several booklets containing many items of information regarding the rubber trade in comparatively little known fields, such as Czechoslovakia and Hungary, British East Africa, French Africa, Portuguese Africa, British West Africa and Liberia, Arabia and Persia, French Indo-China and Siam. The tables of statistics, information regarding customs duties, exports and imports, etc., should be of interest to every rubber manufacturer.

Holiday Greetings, Calendars, Souvenirs

Calendars

A calendar of unusually large size and attractively printed on deep cream and white paper has been forwarded by the Link-Belt Co., of Philadelphia, Chicago and Indianapolis. Each of the twelve leaves of this calendar is headed by a photographic representation of one of the company's special types of equipment.

The Southwark Foundry & Machine Co., Philadelphia, Pennsylvania, also sends a large calendar containing a number of photographs representing various Southwark installations, many rubber factories being among the users of this well-known line of equipment.

Another calendar of unusual size, and printed in reds and blues on a white ground, has been presented by the Rubber Service Laboratories Co., Akron, Ohio, specializing in accelerators, chemicals and pigments for the rubber trade. This calendar, as in the case of the two mentioned above, features the days of the current month by large characters, while those of the preceding month and the one following appear on each page in smaller figures.

Another large calendar, somewhat similar in appearance to the one just mentioned, has been prepared by the Akron Rubber Mold & Machine Co., Akron, Ohio, manufacturers of "Rubbermold" tire building and tire repair equipment.

The Stedman Products Co., South Braintree, Massachusetts, manufacturer of Monatiquot naturized reclaimed rubber and rubber flooring, has sent an artistic calendar printed in brown tones and containing a representation of the picturesque old saw mill at Kennebunk, Maine.

A gaily colored calendar, effectively displaying a hunting scene, has been presented by Charles E. Wood, Inc., crude rubber broker, with offices at 6 Church street, New York, N. Y.

Another art calendar, also in color, and representing a garden scene with a young woman in the foreground, has been sent by the Oak Rubber Co., Ravenna, Ohio.

From the Pfeiffer Color Co., 99 John street, New York, N. Y., comes a gay little calendar, printed in attractive colors, and representing two children absorbed in painting a toy ship.

A large and beautiful calendar, reproducing one of Corot's paintings, forms an acceptable gift from The Adamson Machine Co., Akron, Ohio, manufacturer of various types of rubber mill machinery.

The American Zinc Sales Co., Columbus, Ohio, a subsidiary of the American Zinc, Lead & Smelting Co., has again sent a useful calendar, printed in red and black, and arranged for mounting on a metal background.

Another little calendar, of desk size, has been presented by The Taintor Co., 2 Rector street, New York, N. Y., specialist in whiting and Paris white, as prepared from English chalk and cliffstone.

One of the well-known "motto" calendars, with an accompanying New Year's greeting, has been sent by the president of the B. C. Tillinghast Rubber Co., Inc., Philadelphia, Pennsylvania.

Cards and Souvenirs

A handy little memorandum book containing several useful maps and various tables of statistics has been sent by John Royle & Sons, Paterson, New Jersey, makers of special rubber machinery.

The Akron Equipment Co., Akron, Ohio, sends an attractive little bill folder, bound in black leather.

Another useful little memorandum book, bound in red leather, comes from Joseph A. McNulty, 114 Liberty street, New York, N. Y., specialist in red oxides and accelerators.

From the Rubber Service Laboratories, Akron, Ohio, comes a small magnifying glass, attractively mounted in a white case.

Special acknowledgment is also made of a number of Christmas and New Year cards and letters, expressing the good wishes of the following: The Davol Rubber Co., Providence, Rhode Island; The Akron Equipment Co., Akron, Ohio; the Pequanoc Rubber Co., Butler, New Jersey; the American Zinc Sales Co., Columbus, Ohio; The Atlas Chemical Co., Waltham, Massachusetts; the Cleveland Liner & Manufacturing Co., Cleveland, Ohio; Mitsui & Co., Limited, New York, N. Y.; De Mattia Bros., Garfield, New Jersey; Marlboro Cotton Mills, McColl, South Carolina; Simpson Rubber Products Co., New York, N. Y.; The Philadelphia Rubber Works Co., Akron, Ohio; The Hoggson & Pettis Manufacturing Co., New Haven, Connecticut; the E. H. Clapp Rubber Co., Boston, Massachusetts; T. C. Ashley & Co., Boston, Massachusetts; the Hartol Products Co., Newark, New Jersey; The Gates Rubber Co., Denver, Colorado; and William H. Scheel, New York, N. Y.

To all these individuals and organizations favoring us with their kind remembrances and friendly greetings we extend our hearty thanks and best wishes for their happiness and prosperity in the year 1924.

Foreign Tariffs

The Rubber Division, Bureau of Foreign and Domestic Commerce, Washington, D. C., has recently issued the following special circulars regarding foreign customs tariffs:

CIRCULAR NO.	COUNTRY	ARTICLES
*318	Czechoslovakia	Rubber Goods
*341	Denmark	Rubber Goods
360	British West Africa	Rubber Goods
361	Liberia	Rubber Goods
362	British East African Dependencies	Rubber Goods
364	Rumania	Rubber Goods
†368	Norway	Rubber Goods
‡369	Switzerland	Rubber Goods
380	Poland and Danzig	Rubber Goods

*Supplementary.
†Canceling Special Circular No. 114.
‡Canceling Special Circular No. 128.

Italy-Spain

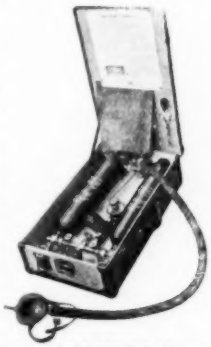
Included in the new commercial treaty between Italy and Spain, effective December 10, 1923, have been reciprocal concessions, while duties on certain articles are levied at less than the usual rates. Among the Italian goods listed and accorded conventional rates in the Spanish tariff are: Rubber tires, unmanufactured rubber, and sheets of unvulcanized rubber.

UNITED STATES EXPORTS OF RUBBER MANUFACTURES TO BRITISH West Africa increased from a value of only $1,527 in 1914 to $161,133 in 1922. Similar exports to British East Africa rose from a value of $677 in 1914 to $73,674 in 1922.

New Goods and Specialties

H-H Inhalator for Gas Victims

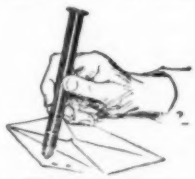
THE improved H-H inhalator illustrated is a device for administering carbogen to victims of asphyxiation, suffocation, etc. Carbogen is the trade name for the correct mixture of oxygen and carbon dioxide to produce normal stimulation and the maximum absorption of oxygen. When respiration has stopped, artificial respiration by the manual prone pressure method is employed to start spontaneous breathing, and carbogen is administered simultaneously from the H-H inhalator. The rubber parts of the inhalator include a 4-foot wire-wound non-collapsible rubber tube of 0.8-inch inside diameter; a pneumatic rubber cushion on the face mask, which covers the nose and mouth of the patient; and a rubber breathing bag which serves as a reservoir and which is equipped with a graduated low pressure regulating valve by which the size of the opening and the volume of gas passing through it are regulated by the turn of a hand wheel.—Mine Safety Appliance Co., Chamber of Commerce Building, Pittsburgh, Pennsylvania.



Improved H-H Inhalator with Spare Cylinder

A Fountain Pen for Mucilage

Rubber enamel is employed in the construction of a novel desk convenience which is being marketed under the trade name of "Gloo-Pen." It is an inexpensive item made of tin with a heavy coating of brilliant red rubber enamel. It compares in size and weight with the ordinary ink fountain pen and is designed to do away with all the unpleasant features connected with the use of mucilage. The manufacturers say that the mucilage cannot dry up in the pen and it is therefore always ready for use. You simply hold the tube in a vertical position and press against the object to be gummed. Every pressure automatically opens and closes the tube, leaving a drop of mucilage at that spot.—The Gloo-Pen Co., 33 Grand street, New York, N. Y.



The "Gloo-Pen"

Rubber Step Plate and Kick Plate Combined

The company manufacturing the combination kick plate and step plate illustrated has as its slogan, "A Particular Step Plate for Every Running Board," and specializes in four varieties, recommending each for the particular type of car for which it was designed. The one pictured is the No. 4 K Combination and is intended for use on cars having medium wide running boards. The mat is securely fastened in the metal frame.

A special combination of similar design is effectively applicable for Ford cars.—The Mid-West Rubber Co., East 18th and Chester avenue, Cleveland, Ohio.

No. 4-K Combination

Hard Rubber Ignition Tester and Cleaner

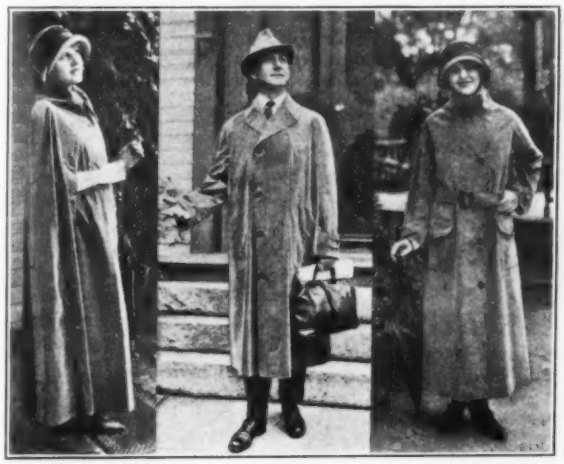
In a neat little device called the "Sparka," for testing ignition and cleaning carbon or foreign matter from spark points, the testing is done by means of a short circuit between the terminal and body of the plug. The casing of the device is of hard rubber, in two parts, one of which is a tube which when it slides in one direction furnishes a housing for the steel bristles of the brush, at the same time drawing in and protecting the short-circuiting link, and when moved in the other direction projects both the brush and the prongs of the short-circuiting link, so that they are ready for use.—Simplex Electric Co., Sandy Park Road, Brislington, Bristol, England.

A Twenty-Ounce Waterproof Coat

Meade rubberized cloths of numerous kinds have become so well known in various branches of the trade that it was inevitable that the manufacturers of them should eventually engage directly in the production of waterproof clothing. Their initial offering is "Gos-mer-ett," the twenty-ounce waterproof coat, a handsome, stylishly cut and nicely tailored garment for men and women, boys and misses. It is made with convertible collar, adjustable wrist bands, Raglan sleeves, vent under arms, all buttons reinforced, seams cemented and strapped, belt, and two slash pockets on men's and boys' and patch pockets on women's and misses'. There is also an attractive cape for women and misses having full sweep, convertible collar, and arm slits.

These garments are made of "Gos-mer-ett" cloth, a new lightweight, rubber-coated zephyr fabric, guaranteed thoroughly waterproof, and manufactured under a United States patent issued January 1, 1924. Made in silver gray, wine, blue and green, its electric finish gives it an admirable wearing surface, richness and luster. The colors are soft and the silver changeable effect or sheen gives the cloth a silky appearance.

Light in weight and thin, a "Gos-mer-ett" coat causes no drag on the shoulders nor overheating of the body. It can be worn over a top coat or overcoat without seeming clumsy. When folded it occupies very little space in a traveling bag and can be carried in a hand or golf bag, or even in an automobile door or overcoat pocket.—Meade Rubber Sales Co., Stoughton, Massachusetts.



"Gos-mer-ett" Raincoats in a Variety of Styles

Rubber Teething Toy

A decided novelty of interest to dealers in druggists' sundries as well as to toy dealers is the rubber spinning top illustrated. It is made of heavy red rubber, hollow but non-collapsible, and is intended to take the place of the teething ring as well as to serve as a bathtub toy. It will spin on the water and float and is practically indestructible. B. Altman & Co., Limited, New York, are the selling agents in the United States.—Rogers Brothers Co., 5 Princes street, Hanover Square, London, W. I., England.

The "Niblet" Top

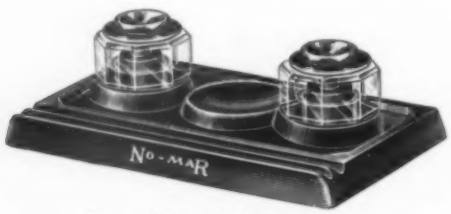
Rubber Dolls for Advertising Purposes

"Daddy Boy" Doll

More and more are retailers of almost every variety of goods realizing the value of premiums or advertising devices that appeal to children. They are inexpensive and "get across" much more easily than the merely useful thing. The youngsters persuade mother to shop where they get toy balloons as they pass out the door, or rubber dolls and such things as premiums. The "Daddy Boy" doll illustrated has proved very popular among premium users and advertisers. It is made of heavy seamless rubber in red, yellow, white, and black combinations, is 12 inches high, and an advertisement may be printed on the back of the head if desired.—The Perfection Rubber Co., Cleveland, Ohio.

Colored Rubber Inkstand Base

A new desk accessory employing rubber in a very attractive form is called the "No-Mar" inkwell base. It is made of flexible, medium hard, colored rubber, corrugated on the bottom so that it will not slip or slide or in any way injure the most highly polished wood. These bases are in three general styles, one having an inkwell in the center with a pin cup on each side; another with two inkwells and pin cup between the two; and a third with the inkwell alone, without the pin cup. They are quite handsome in appearance, the regular colors being olive green and brown, but special colors may be ordered.—Sengbusch Inkstand Co., Milwaukee, Wisconsin.



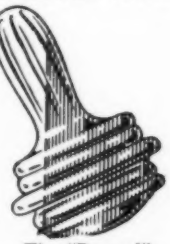
The "No-Mar" Inkwell Holder

THE B. & G. RUBBER CO., NANKIN, OHIO, IS MARKETING ITS line of toy balloons on easel display cards having 8 different varieties, 6 of each, 48 to a card. Each balloon is separately attached to the card and each card, of which there are three to a gross, is encased in a transparent envelope. A 10-cent display card with 24 novelty balloons to a card is also being sent out.

Miniature Feeders for Infants

The ordinary type of "comforter" or soothing nipple is frowned upon by many physicians and nurses, and the miniature feeders illustrated are intended to overcome the objections by providing small containers for honey, gripe water, fruit juices, etc., by which the infant may be soothed to sleep and which when empty will not allow air to be drawn in. The Dormel consists of a removable transparent rubber nipple and cap having a glass union, which serves to preserve the shape, the cap or base being the container for the liquid. The Do-Well differs from the Dormel by having the base entirely of glass, the rubber nipple fitting tightly over it. The Dormel with the rubber cap removed may be used as a breast shield.—John Dowell & Sons, Ltd., Globe Works, Chatsworth Road, Clapton Park London, E.5.

The "Do-Well"



The "Dormel"

Hard Rubber Radio-Phonograph Attachment

Huguenot Radio-Phonograph Attachment

The Huguenot Radio-Phonograph attachment illustrated utilizes the scientific distribution of sound of the modern phonograph to furnish a simple and inexpensive loud speaker. It consists of a Y-shaped piece and a pair of highly polished vulcanized hard rubber caps threaded for any standard headphone, which fits the tone arm of any phonograph and is interchangeable with the sound box. To use it, you unscrew the caps of the headphones and replace them with the Huguenot caps; remove the sound box of the phonograph and attach the Huguenot on the tone arm.—McKenzie Engineering Co., New Rochelle, New York.

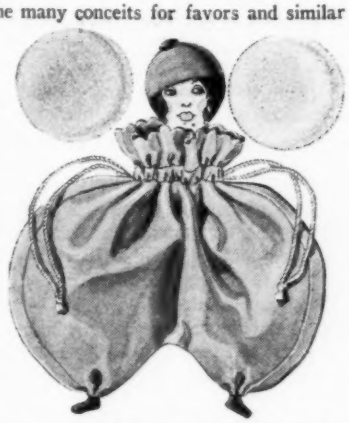
"Paremse" Rubber Bath Accessories

The illustration shows only one of a number of "Paremse" items made of pure plantation rubber, sterilized and cured, which bring the bathroom equipment up-to-date in the line of rubber goods. This is a rubber glove made in the form of a bag and perforated so that the water may filter through it in all directions. It may be fitted with the Paremse soap saver, a small pocket also of perforated rubber, into which bits of soap which would otherwise be discarded as waste may be kept and used up completely. This soap saver is also incorporated in the Paremse friction strap, a device for scrubbing the back and shoulders. Still another device of this class is called a shower glove. It is shaped like the one illustrated but the perforations are larger and through one surface only.—Plantation Rubber Manufacturing Co., Ltd., 14 Mincing Lane, London, E. C. 3.

"Paremse" Bath Glove

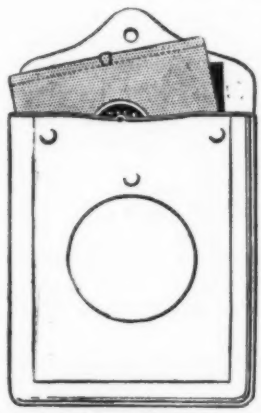
Kleinert's Harlequin Powder-Puff Bag

One of the daintiest of the many conceits for favors and similar gifts which are being produced nowadays entirely of rubber is the powder-puff drawstring bag illustrated. It is in very bright shades of pure rubber and the seams are reinforced. The head, with its brilliantly painted face and rubber cap tipped with a rubber button in contrasting color, is merely an ornament fastened into the drawstring ribbon so that it stands out of the ruffle exactly like a little harlequin. The bloomers are held out by the two powder puffs which they carry. Tiny black rubber shoes complete the costume. These bags are supplied in individual boxes, in the cover of which is an isinglass window through which the little face peeps.—The I. B. Kleinert Rubber Co., 485 Fifth Avenue, New York, N. Y.



Drawstring Bag for Two Powder-Puffs

The Waterless Hot Bag

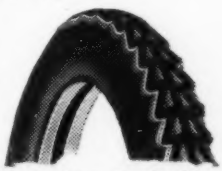


The "Ever-Hot" Bag

The chemical filler generating heat for the hot water bag is making a strong bid for popular favor. The "Ever-Hot" waterless bag illustrated is made of the highest grade of heat-proof live rubber, 8½ inches long by 7 inches wide, and houses a chemical filler contained in a canvas bag which develops a constant heat lasting 24 hours, when moistened with an ounce of water and kneaded for about a minute. There are no metal parts and the bag is leak-proof. The refill costs only 15 cents at drug stores and will produce heat continuously for 4 days if moistened once in each 24 hours, or it can be used at 4 separate times without deteriorating between times.—Everhot Chemical Corporation, Newark, New Jersey.

New Cornhusker Tire

The manufacturers of the Cornhusker tire illustrated claim that although this is not an entirely new product, it has undergone so many improvements in construction during the past year that they feel justified in calling it the New Cornhusker. It is an all-black tire of long staple cotton and of rut-proof construction, carrying the tread stock from bead to bead.—Nebraska Tire & Rubber Co., Inc., Omaha, Nebraska.



The New Cornhusker

THE LATEST STANDARD PRODUCTION OF WESTINGHOUSE BATTERIES, made by the Westinghouse Union Battery Co., Swissvale, Pennsylvania, employs a one-piece molded rubber case instead of the wood case and rubber jars formerly used.

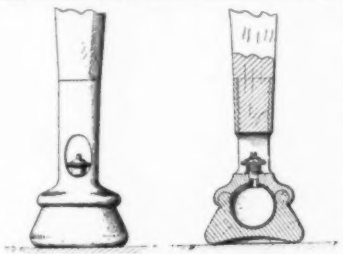
New Molded Rubber Dater

The Cyclo dater, shown in the illustration, is said to be built for long life and hard service. It is a hand dating stamp with ten years on the year-date wheel and with positive locked alinement of dates and accurate adjustment for thickness of die. The date wheels are of solid rubber, molded in one piece, with no bands to break or type to lose, and the case is in one piece of solid brass with full nickel finish. It is made with standard size die plates, No. 2, 3, and 9, 2 inches round. This is said to be a very salable article and the manufacturers are making liberal discounts for gross orders.—The R. H. Smith Manufacturing Co., Springfield, Massachusetts.

The Rubber Wheels of the Cyclo Dater and the Device Assembled

Crutch Tip with Pneumatic Cushion

A recently patented crutch tip which seems to give the maximum of protection against the shock of impact with pavements, etc., has as its distinctive features a head with a clincher bead on its lower face, and its upper end formed with a pair of legs or struts which terminate in a sleeve into which the lower end of the crutch stock fits. A hollow rubber shoe has its upper end formed with a bead adapted to be received by the clincher bead, and incloses a pneumatic cushion which when inflated, through an easily accessible valve, not only serves as a shock absorber but holds the shoe securely in place so that it cannot become dislodged from the clincher bead.—William G. Bell, 1410 M street, N. W., Washington, D. C.



Crutch Tip, Showing Valve Stem and Cross-Section

Mason "Safety-First" Cords

The 207 safety grips "that hold—and hold—and hold," to quote from the manufacturers' broadside, are the feature of this new tire. Deep down under these grips is a carcass of strong Egyptian cotton of finest quality, which is a further guarantee of safety. At 25 miles an hour, it is claimed, there are over 1,000 road contacts with the safety grips, which makes it practically impossible for the car to sideslip or skid.—The Mason Tire & Rubber Co., Kent, Ohio.

Safety Grips of New Mason Tire

THE SEIBERLING ALL-TREAD, WHICH IS MAKING ITS BOW TO THE trade, has as a distinctive feature the long bars of its tread design carried half way down the sides, to give protection to the sidewalls and to furnish additional traction. This construction has been tried out on truck tires for nearly two years with great success and on passenger cars for almost a year. Large sales are anticipated on the 33 by 5 size.—Seiberling Rubber Co., Akron, Ohio.

The National Automobile Show

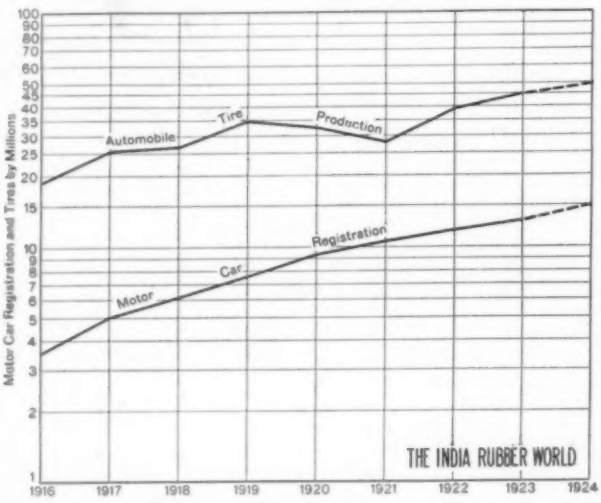
THE Twenty-fourth Annual National Automobile Show, under the auspices of the National Automobile Chamber of Commerce, was held in the Armory of the 258th Field Artillery, New York, N. Y., January 5-12, 1924.

This year's exhibit of automobiles and accessories was by far the largest and most satisfactory that has ever been held. It was fittingly displayed in an airy and spacious building appropriately and tastefully decorated for the occasion. All the cars were shown on the main floor grouped in spaces outlined by statuary markers. Notwithstanding the very large attendance at every session no inconvenience was experienced by visitors in viewing the exhibits in detail.

The notable features of the show were refinement in design of car bodies; perfection of structural and operating equipment in essentially every make of car; the wide acceptance of four-wheel brakes; the appearance of low pressure or balloon tires, and fabric bodies. The show contained practically no rubber exhibits as such, tires appearing only as car equipment.

Growth of the Automobile Industry

The National Automobile Chamber of Commerce reports a very interesting summary of the automobile industry which now ranks third in size among American industries. It affords employment to 2,750,000 persons in motor vehicle and allied lines. Last year's production of cars and trucks was 4,014,000, with a wholesale value of $2,510,885,000. Parts and accessories amounted to about half this sum, or $1,310,000,000 exclusive of tires. Of tires 45,000,000 were required in 1923, having a wholesale value of $760,000,000. By this showing the wholesale value of new cars, trucks, accessories and tires reached the total of $4,570,885,000.



Ratio Graph of Motor Car Registration and Tire Production—1916-1923 Inclusive

Outlook for 1924

Leaders in the automobile and tire industries agree that the interest in the show indicates certain development of prosperous conditions in American industry. In this connection the views expressed by W. O. Rutherford, president of the Rubber Association of America, vice president in charge of sales of The B. F. Goodrich Co., are of special interest. Summarizing American industrial conditions for 1924, Mr. Rutherford believes that post-war readjustment and changed living conditions have forced all classes of industry to greater economic efficiency in new and better methods, reduction of overhead expense and betterment in quality of product as typified in particular by the changes in the tire industry.

In conclusion Mr. Rutherford said:

"I am not looking for a good 1924 on account of the magnitude of business. Manufacturers have learned that big volume does not necessarily mean prosperity. The trouble in the past has been the vanished profits in output.

"We are primed to make 1924 a good year by taking something else out of output. We are going to take out waste, even waste that has been regarded as normal.

"Our reorganization has brought into effect economies of production, savings in our marketing methods, and a generally changed, scientifically better way of doing things."

Automobile Accessories

The display of accessories made by 222 exhibitors occupied somewhat less area than that devoted to cars and apparently omitted nothing than can conduce to the comfort, convenience or safety of the motorist.

An automobile accessory show would be an anomaly without the exhibit of A. Schrader's Son, Inc., Brooklyn, N. Y. Their exhibit, as usual, was a very effective display of tire valves, dust caps, air chucks, pump connections, three types of pressure gages and various convenient tire valve repair tools.

The American Chain Co., Inc., Bridgeport, Connecticut, showed "Acco" cable beads made under the Pratt patents for use in tire manufacture. "Acco" cable beads consist of seven strands of steel wire twisted into one cable about ¼-inch in diameter. They are free from welded, soldered, or brazed joints, are made for all sizes and are assembled in hooped-form units ready for use.

Supplementary Shows

In the Ford Motor Co.'s building, New York City, an interesting and important exhibit was on view from January 5 to February 2, 1924. This was a national exhibition of cars, trucks and tractors and the equipment of 81 manufacturers made especially for use with Ford trucks and Fordson tractors.

In the exhibit, which occupied several floors of the Ford building, Ford and Lincoln cars and trucks were displayed. Tractors were shown adapted to various agricultural and industrial uses.

Of notable interest at the Ford exhibit were the paintings and large size models showing the processes of steel making at the River Rouge plant, from ore to ingot; the process of plate glass manufacture; Ford lumber methods and wood utilization, and the Ford Highland Park plant.

The exhibit by the Firestone Tire & Rubber Co., of crude rubber and cotton fabric as processed in the making of Ford tires was timely and instructing, standard, balloon and solid tires being shown.

The lobby of the Commodore hotel contained a special exhibit of cars during show week, of which the Meritas-made fabric body was of particular interest. This is a new system of construction in competition with metal, artificial leather or rubber coated fabrics for closed car bodies. Its salient features are quietness, reduced weight, comfort, appearance, and economy of maintenance.

A conventional wood frame construction as used in standard practice is the foundation of the Meritas fabric body. A few thin, light weight strainers are added where panel contours are required. In this way the most artistic lines and contours are readily attained. A two-mesh 19-gage, galvanized wire is tightly

stretched over the frame. The construction at this point is as sturdy and as staunch as a completed metal body, with the additional advantage of a certain flexibility.

Two layers of cotton wadding are placed over the wire and tensioned into the mesh by stretching tightly over them number ten canvas, thus providing a substantial flexible panel ready for the outer covering. The final step is stretching on the Meritas leather cloth, a material specially made for this purpose. It differs from ordinary artificial leathers in that it is a two-ply or laminated fabric, bonded with a special oil cement. It has a hard finish black coating similar to that on enameled leather grained in imitation of londres leather, which retains its luster almost indefinitely. When necessary it can be refinished with a single coat of varnish.

Motor Car Registration and Tire Production

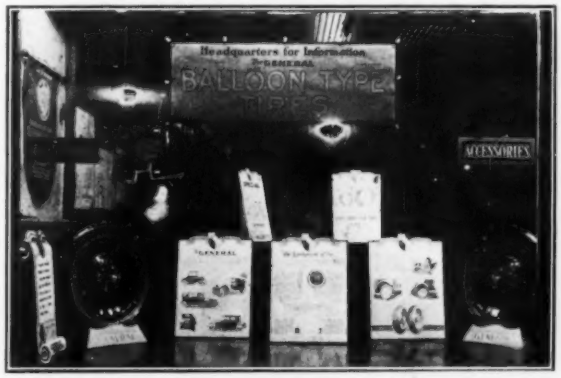
The graph on the preceding page compares on a ratio basis, graphs of motor car registration and tire production in the United States from 1916 to 1923 inclusive, according to the data in the following table:

Year	Motor Car Registration	Tire Production
1916	3,512,996	18,500,000
1917	4,983,340	25,850,000
1918	6,146,617	21,600,000
1919	7,558,848	34,300,000
1920	9,211,295	32,100,000
1921	10,448,632	27,267,000
1922	11,500,000	38,200,000
1923	12,880,000	45,000,000

DURING 1922 RUMANIA BOUGHT NO AMERICAN-MADE CANVAS shoes with rubber soles, but her September purchase of such goods was estimated at 18,356 pairs, valued at $22,834.

GENERAL FEATURES BALLOON TIRES

In a recent advertising campaign for giving wider publicity to its type of balloon tires, The General Tire & Rubber Co., Akron, Ohio, prepared for the use of its dealers a number of posters, circulars and window displays. These tell the story of the General company's production along this line from the 30 by 3½ Jumbo fabric casings manufactured in 1916 up to the low-pressure types in service at the present time. A ready sale for balloon tires is reported, while General dealers assert that the attention attracted by the new casings is, curiously enough, an aid to them in selling the regular styles. Balloon tires are manufactured by the General company in the following sizes: 28 by 4, 30 by 5, 32 by 4, 32 by 6, and 34 by 8.



Ceylon Tire Co., Akron, Displays General Balloon Tires

REPORT OF RIMS APPROVED AND REJECTED DURING 1919, 1920, 1921, 1922 AND 1923

	1919	1920	1921	1922	1923
Total number rims inspected	15,057,908	15,426,320	10,860,046	17,789,381	25,420,287
Total number rims approved	12,485,211	12,860,724	9,175,039	16,281,583	23,141,962
Number rims rejected	2,572,697	2,565,596	1,685,007	1,507,798	2,278,325

Rims approved and branded by the Tire and Rim Association are classified in sizes as follows:

SIZE	1919 Number	1919 Pct.	1920 Number	1920 Pct.	1921 Number	1921 Pct.	1922 Number	1922 Pct.	1923 Number	1923 Pct.
26 x 2½	.....	....	1,739	0.0	1,157	0.0	none	....	none	....
26 x 3 Cl	29,088	0.3	69,572	0.5	12,629	0.1	16,730	0.1	36,863	0.1
28 x 3 Cl	140,035	1.1	119,317	0.9	26,902	0.3	61,142	0.3	73,680	0.3
30 x 3 Cl	1,665,687	13.3	1,365,757	10.6	532,034	5.8	782,816	4.9	1,009,856	4.4
27 x 3½ SS	.....	....	.....	....	.....	....	.....	....	33,381	0.1
30 x 3½ Cl	4,591,228	37.8	5,634,663	43.8	5,588,656	60.9	8,334,385	51.2	11,204,235	48.4
30 x 3½ SS	.....	....	.....	....	172,238	1.8	1,632,809	10.0	3,403,190	14.7
32 x 3½	1,184,950	9.5	1,183,251	9.2	323,784	3.5	186,937	1.1	143,575	0.6
28 x 4 SS	.....	....	.....	....	.....	....	.....	....	17,048	0.1
28 x 4 Ap	.....	....	.....	....	.....	....	.....	....	703	0.0
31 x 4 Cl	.....	....	.....	....	.....	....	.....	....	1,594,862	6.9
31 x 4 SS	.....	....	.....	....	.....	....	4,319	0.0	109,705	0.5
32 x 4	1,523,692	12.2	1,311,244	10.2	1,261,475	13.7	3,041,559	18.7	3,014,093	13.0
33 x 4	1,148,629	9.2	1,041,652	8.2	487,206	5.3	411,621	2.5	211,437	1.0
34 x 4	268,290	2.1	127,584	1.0	32,041	0.3	59,696	0.4	20,438	0.1
29 x 4½	.....	....	.....	....	.....	....	5,410	0.0	67,919	0.3
32 x 4½	314,984	2.5	642,473	5.0	326,412	3.5	1,065,220	6.6	1,438,610	6.2
33 x 4½	.....	....	874	0.0	.....	....	79,787	0.5	80,892	0.4
34 x 4½	929,019	7.4	878,097	6.8	346,254	3.7	458,478	2.8	466,438	2.1
36 x 4½	46,292	0.4	38,601	0.3	8,323	0.1	11,265	0.1	4,559	0.0
30 x 5	.....	....	.....	....	.....	....	508	0.0	5,548	0.0
34 x 5	264	0.0	43,463	0.3	48,637	0.5	112,234	0.6	141,278	0.6
32 x 6	.....	....	.....	....	.....	....	676	0.0	5,597	0.0
36 x 6	459,353	3.7	123,659	1.0	2,928	0.0	11,906	0.1	22,750	0.1
34 x 7	.....	....	.....	....	.....	....	282	0.0	2,084	0.0
38 x 7	30,784	0.3	48,603	0.4	1,151	0.0	8,102	0.1	5,407	0.0
36 x 8	.....	....	.....	....	.....	....	353	0.0	3,019	0.0
40 x 8	19,544	0.2	38,182	0.3	1,127	0.0	4,795	0.0	6,442	0.0
44 x 10	4,375	0.0	2,431	0.0	190	0.0	.....	....	none	....
Millimeter	128,997	1.0	191,394	1.5	1,895	0.0	6,755	0.0	909	0.0
Totals	12,485,211	....	12,860,724	....	9,175,039	....	16,281,583	....	23,141,962	....

KEY:—
"Ap" Airplane.
"SS" Straightside.
"Cl" Clincher.

Rims in following sizes were made experimentally in 1923: 29 x 3 — 645; 28 x 3½ — 14,070; 29 x 4 — 2,126; 30 x 4 — 41; 30 x 4½ — 478; 31 x 4½ — 67; 31 x 5 — 23

NOTE:—Supervisory inspection on all straightside rims started June 1, 1922. Since that date all rejections are clincher rims.
Tire and Rim Association of America, Inc.

The Obituary Record

A Distinguished Belgian Rubber Merchant

THE rubber trade of the world learned with deep regret of the passing of Lieutenant-Colonel Leon Osterrieth, who died at Brussels, Belgium, on January 2.

With his brother, P. L. Osterrieth, and other relatives he was associated with Osterrieth & Co., Antwerp, a well known firm of importing merchants dealing in rubber and allied tropical products and owning considerable interests in the planting industry in Java and British Malaya. Many of the visitors to the International Rubber and Allied Trades Expositions of 1911 and 1914 will remember him as the delegate for Belgium, and that his firm exhibited at the Third International Rubber Exposition in New York, N. Y., in 1912. His active cooperation aided materially in the success of these expositions.

Lieutenant-Colonel Leon Osterrieth

When war was declared in 1914 Colonel, then Commandant, Osterrieth was on his way to the Rubber Congress in Java, but heard the news at Port Said and returned hastily. After gallant service in the Belgian army in the trenches of Flanders he came to America in 1917 as chief of the Belgian Military Mission and was stationed at Washington. As military attaché of the Belgian Embassy his commanding figure was conspicuous among those prominent in the greeting of the Belgian King and Queen in New York, N. Y., in October, 1919.

Nor were the other members of his family to be outdone in their devotion to a great cause during the war. His mother, well known and beloved in Antwerp for her many acts of benevolence covering a period of many years, redoubled her efforts to alleviate as much as possible of the suffering of those about her. His firm also did its country an important service. Osterrieth & Co. was one of a powerful group of importers who jointly had several thousand tons of rubber stored in Antwerp on the outbreak of the war. Sudden and unexpected as was the German invasion, Osterrieth and the other importers at once realized the military importance of their rubber and speedily removed most of it to England, where it escaped seizure by the enemy.

A man of commanding presence, lovable disposition, progressive ideas, business acumen, wide interests and many friends, his death is a genuine loss to Belgium and the rubber trade of the world.

Former Vice President, Hood Rubber Co.

Edward I. Aldrich, one of the founders of the Hood Rubber Co., Watertown, Massachusetts, and until recently vice president and a director, died of heart trouble at his home in Brookline on January 23 at the age of 70 years. He had not enjoyed good health for some time and had recently resigned his connection with the Hood Company.

Mr. Aldrich was born in Upton, Massachusetts, in 1851 and was educated in the public schools and Wilbraham Academy. On graduation he started in the boot and shoe business in a small way. In 1888 he became selling agent of the Boston Rubber Co., organized in 1878 by the late George H. Hood, in Chelsea, and in 1892 sold by him to the United States Rubber Co. Mr. Aldrich continued in this capacity until 1896, when with Frederic C. Hood he became one of the founders of the present Hood Rubber Co. For many years he was its selling agent, a director and vice president, and a director of the Hood Rubber Products Co. His business acquaintances will long remember their pleasant association with him.

Edward I. Aldrich

Mr. Aldrich was deeply interested in the activities of the Congregational denomination and was a member of the Harvard Church in Brookline. He had a summer home at Northfield, Massachusetts, where he had gone for thirty years. The late Dwight L. Moody's schools, especially Northfield Seminary, always found Mr. Aldrich a sympathetic and loyal supporter.

Mr. Aldrich was a member of the Twentieth Century Club, Boston Chapter, Sons of the American Revolution, Bostonian Society, Boston City Club, Boston Chamber of Commerce, Economic Club, and the Congregational Club, as well as some of the other bodies allied to the Congregational denomination.

Surviving members of Mr. Aldrich's family are his wife, who was Miss Mary Pickering Joy, of Groton; two daughters, Mrs. Joy A. Prentiss, of Brookline, and Mrs. Arthur F. Jones, of Boston; a son, Richard S. Aldrich, who is a junior at Harvard; and a brother, Charles E. Aldrich, of Brookline.

Manager of the Aluminum Flake Co.

Tibor Remenyi, for more than a decade active manager of the Aluminum Flake Co., Akron, Ohio, died of pneumonia on December 21, 1923, at the age of fifty, after a serious lingering rheumatic affliction covering a period of some five years.

Tibor Remenyi

Mr. Remenyi was born in Hungary in 1873, the son of Edward R. Remenyi, one of the greatest violinists of his time, and Mme. Fayolle, a Hungarian noblewoman. Franz Liszt, the great pianist, was his godfather. When three months of age he was taken to Paris, France, where he was educated in the French language, graduating from the Academy of Paris at the age of fourteen. In this environment he came in contact with the greatest artists, writers and personages of that day, including Rodin, Hugo, d'Aurevilly, Bernhardt and Kossuth, the Hungarian patriot.

As a boy he studied to be a pianist, but was forced to abandon

this because of an accidental injury to one of his fingers. He then took up study of the languages, and when about seventeen came to America and made his home in New York, N. Y., while his father toured the country. On the death of his father he went to Akron, Ohio, took charge of the Alliance Française Club and for about eight years taught French diction.

During this time he became the close friend of Frank Reifsnider, general manager of the Aluminum Flake Co., of that city, who introduced aluminum flake to the rubber industry. Upon the death of Mr. Reifsnider in 1909, and carrying out his expressed wish, Mr. Remenyi took over the management of the company, and from then until his own death devoted to it a loyalty, zeal and genius as remarkable as it was unfaltering. Although confined to his home for more than a year past, he cheerfully and with great fortitude kept in touch with and conducted the business until the end, despite intense suffering.

A rare personality, combining artistic and literary appreciation and ideals with brilliant business genius, wonderful memory and ardent devotion to France and patriotism to the United States, of which he became a citizen, Mr. Remenyi was loved, and his death is mourned by business associates, a host of friends and high personages on two continents.

Edward Sawyer

Edward Sawyer, president of the Atlantic Insulated Wire Co., Stanford, Connecticut, died suddenly on January 22. His obituary will appear in our next issue.

New Incorporations

1923

Alexander Faure Holding Co., Inc., December 29 (New York), $10,000. F. C. Berdonlay, 160 W. 56th street; Donald Campbell, 111 W. 62nd street, both of New York City; R. E. Hericourt, Great Neck, Long Island, New York. Principal office, Manhattan. To make vehicle tires.

American Wire Cord Tire Co., December 24 (Delaware), 100,000 shares without nominal or par value. T. L. Croteau; M. A. Bruce; A. M. Hooven, all of Wilmington, Delaware. Principal office, with the Corporation Trust Company of America, DuPont Building, Wilmington, Delaware. To manufacture and deal in goods of rubber, gutta percha, cotton and other products.

Auto Tire Exchange, Inc., November 20 (New Jersey), $35,000, divided into 350 shares of the par value of $100 each. Leo Kaplus, 278 Seymour avenue; Charles Waimon, 19 East Fairmont avenue, both of Newark, New Jersey; Louis J. Franzblau, 1985 Creston avenue, New York City. Principal office, 225 Halsey street, Newark, New Jersey. To buy, sell, deal in rubber tires and tubes, etc.

Boston Auto Fabrics Co., The, December 18 (Massachusetts), $75,000. Abraham L. Fistel, president, 56 Evelyn street; Samuel Goldstein, treasurer, 41 Clarkwood street; Abe Kosow, clerk, 36 Algonquin street, all of Dorchester, Massachusetts. Principal office, Boston, Massachusetts. To buy, sell, manufacture and deal in rubber, cotton and other products.

Cambridge Rubber Co., The, December 21 (Massachusetts), $500,000 preferred stock, and 20,000 shares of common stock without par value. Warren MacPherson, president and treasurer; Ernest Woodruff, clerk; George Helm Rockwell, all of 748 Main street, Cambridge, Massachusetts. Principal office, Cambridge, Mass. To manufacture, produce, buy, sell and deal in rubber clothing, rubber footwear, canvas footwear, rubber heels and other merchandise consisting wholly or in part of rubber.

Canalizo, E. A., & Co., Inc., December 7 (Massachusetts), $500,000 preferred stock and 10,000 shares of common stock without par value. E. M. Richards, president, 85 Devonshire street; William T. Snow, treasurer, Shawmut Bank Building; Warren Motley, clerk, Shawmut Bank Building, all of Boston, Massachusetts. Principal office, Boston, Massachusetts. To manufacture, produce, export, import, sell, exchange and deal in rubber, cotton and other products.

Copeland, O. B., Co., Inc., The, December 21 (Massachusetts), $500,000. William C. Crossley, president, 288 Montgomery street; Grace Copeland, treasurer, 17 Linden street; Joseph M. Donovan, clerk, 17 Linden street, all of Fall River, Massachusetts. Principal office, North Main street, Fall River, Massachusetts. To buy and sell any and all kinds of rubber goods, which may include all kinds of boots, shoes, rubber and other products.

Doscat Rubber Corporation, December 14 (Delaware), $1,000,000; par value, $10, and 350,000 shares of common stock without nominal or par value. T. L. Croteau; M. A. Bruce; A. M. Hooven, all of Wilmington, Delaware. Principal office, with the Corporation Trust Company of America, DuPont Building, Wilmington, Delaware. To manufacture rubber goods of all kinds.

Dyde & Hall Co. September 25 (Oregon), $5,000. Chas. F. Hall; Mrs. Ida Hall; Mary H. Dyde; Chas. S. Dyde. Attorney for the company at the time of incorporating was R. E. Dennison, 508 Chamber of Commerce Building, Portland, Oregon. Principal office, Portland, Oregon. To conduct a retail automobile and accessory store.

Ellis, B. S., & Co., Inc., December 31 (New York), $100,000. B. S. Ellis, president and treasurer, 545 Central avenue, East Orange, New Jersey; W. R. Velthaus, vice president and secretary, 816 Boulevard, Westfield, New Jersey; H. R. Kaus, New York City. Principal office, 15 William street, New York City. To deal in and handle crude rubber and kindred products.

Faure, A., Inc., December 29 (New York), $10,000. C. H. Mayard, 30 W. 73rd street; L. M. Jansen, 241 West 110th street; George Despres, 102 W. 52nd street, all of New York City. Principal office, Manhattan. Manufacture vehicle tires.

Featherweight Products Corporation, November 23 (New York), $50,000. Edward B. Polak, 44 Beaver street, New York City; J. J. Scully, 1383 Pacific street, Brooklyn, New York; F. J. Waldeyer, 84 Oakwood avenue, Bogota, New Jersey. Principal office, Manhattan. Manufacture rubber goods.

Guthman-Kahn Co., Inc., December 28 (New York), $20,000. Elia A. Guthman, 1726 East 22nd street; B. S. Kahn, 1933 85th street; Lillian Rabinowitz, 376 Barbey street, all of Brooklyn, New York. Principal office, Manhattan. To manufacture rubber sundries.

Helm Tire Service Corporation, The, July 31 (Connecticut), $50,000. Charles W. Heim, 159 Linmore street; Lucy G. Helm, 159 Linmore street; Walter J. Helm, all of Broadbrook, Connecticut. Principal office, 565 Broad street, Hartford, Connecticut. To carry on a retail tire business.

Interstate Rubber Co., The, December 13 (New Jersey), $25,000, divided into 250 shares of the par value of $100 each. Louis Banks, 95 Bostwick avenue; Rudolph Miller, 95 Bostwick avenue; Michael Zerpoli, 767 Communipaw avenue, all of Jersey City, New Jersey. Principal office, 767 Communipaw avenue, Jersey City, New Jersey. To manufacture, sell and deal in automobile tires, reliners and blowout patches.

New England Rubber Co., The, December 22 (Massachusetts), 300 shares of stock without par value. John Harrison, president; Sol Shapiro, treasurer, both of 9 Gannett street, Boston, Massachusetts. Principal office, Boston, Massachusetts. To manufacture rubber goods, rubber heels, aluminum heels and other articles manufactured of rubber.

Nu-Cord Tire & Rubber Co., Inc., December 11 (Pennsylvania), $150,000, $125,000 of which is preferred and $25,000 common; par value of the preferred stock is $25.00; par value of the common stock $1.00. With each share of preferred the subscriber must take and pay for five shares of common. J. E. Myers, president, Penn; Ellsmer L. Piper, M. D., first vice president, Export; Luther F. Edward, second vice president, Greensburg; Jas. L. Kennedy, secretary and treasurer, Greensburg; C. B. Hollingsworth, Greensburg; C. M. Wible, Greensburg; Z. T. Myers, Penn; J. E. Wineman, Greensburg, all of Pennsylvania. Principal office, 550 West Otterman street, Greensburg, Westmoreland County, Pennsylvania. To manufacture tires and tubes.

Philadelphia Rubber Works Co., Inc., December 4 (Delaware), 8,000 shares preferred, par value $100; and 30,000 shares of common stock without nominal or par value. T. L. Croteau; M. A. Bruce; A. M. Hooven, all of Wilmington, Delaware. Principal office, with the Corporation Trust Company of America, DuPont Building, Wilmington, Delaware. To manufacture and deal in rubber goods.

United States Gutta Percha Paint Co., December 31 (Rhode Island), $50,000 preferred stock and $100,000 common stock. Charles W. Eastwood, treasurer, Herbert W. Rice and Wayland W. Rice, all of Providence, Rhode Island. Principal office, Providence, R. I. To deal in paints, varnishes, oils and other products.

Village Tire Co., Inc., The, December 24 (New York), $5,000. John D'Angelo, 228 Varick street; Henry Diorio, 80 Carmine street; Bertha Leshin, 120 West 42nd street, all of New York City. Principal office, Manhattan. To deal in tires and auto accessories.

1924

Meade Rubber Sales Co., The, January 2 (Massachusetts), $10,000. James Meade, president and treasurer; Patrick J. Mahoney, vice president; David J. Fraser, assistant treasurer and clerk; Matthew Meade, all of Stoughton, Mass. Principal office, Stoughton, Massachusetts. To manufacture and sell rubber goods, rubber boots, rubber shoes, rubber heels and other rubber products.

Nestler Rubber Fusing Co., Inc., January 2 (New York), $5,000; par value $10. J. C. Kimball, 203 West 54th street, New York City; Emil Nestler, North Hackensack, New Jersey; P. A. Kimball, 203 West 54th street, New York City. Principal office, Manhattan. To carry on a crude rubber and tire business.

Rex Rubber Corporation, January 11 (New York), 200 shares no par value. E. J. Willey, 9 Warren street; Geo. L. O'Neil, 228 Court street, Jeanette Smith, 151 Oak street, all of Binghamton, New York. Principal office, Binghamton, New York.

Yorke Rubber Corporation, January 12 (New York), $30,000. H. W. Young, 31 8th avenue, Astoria, Long Island, New York; Adolph Sanger, and E. L. Sanger, both of 304 W. 58th street, New York City. Principal office, Manhattan. To manufacture auto tires.

Zimmerman Tire Co., Inc., January 19 (New York), 500 shares no par value. C. R. Zimmerman, Holcomb, New York; F. I. Hogan, 80 Elmdorf avenue; J. B. Van Dusen, 91 West High Terrace, both of Rochester, New York. Principal office, Rochester, New York. To carry on a merchandising and manufacturing business.

AMERICAN CHEMICAL SOCIETY OFFICERS

The following were recently elected officers of the American Chemical Society, 1709 G. street, N. W., Washington, D. C.: Leo H. Baekeland, president; Charles L. Parsons, secretary; and John E. Teeple, treasurer. Through his well-known inventions Dr. Baekeland has greatly furthered the development of chemical science in this country as well as in other countries. He is connected with a number of learned societies in the United States and in Europe, and is the author of various publications relating to chemistry and the allied fields. He is now honorary professor of chemistry at Columbia University.

News of the American Rubber Trade

Financial

Dividends Declared

Company	Stock	Rate	Payable	Stock of Record
*Firestone Tire & Rubber Co.	6% Pfd.	$1.50 q.	Jan. 15	Jan. 1
Firestone Tire & Rubber Co.	7% Pfd.	$1.75 q.	Feb. 15	Feb. 1
General Tire & Rubber Co...	Com.	1½% q.	Feb. 1	Jan. 20
Goodrich Co., The B. F.....	7% Pfd.	$1.75 q.	Apr. 1	Mar. 21
*Hood Rubber Co.....	Com.	$1.00 q.	Dec. 31, 1923	Dec. 20, 1923
Hood Rubber Co.....	7% Pfd.	$1.75 q.	Feb. 1	Jan. 19
Hood Rubber Co.....	Com.	$1.00 q.	Mar. 31	Mar. 20
Hood Rubber Products Co..	Pfd.	$1.75 q.	Mar. 1	Feb. 20
Kelly-Springfield Tire Co....	8% Pfd.	$2.00 q.	Feb. 15	Feb. 1

*Corrected

New York Stock Exchange Quotations

January 22, 1924

	High	Low	Last
Ajax Rubber, com.....	9¾	9½	9⅝
Fisk Rubber, com.....	9⅞	9⅞	9⅞
Goodrich, B. F., Co., com.....	24½	24¼	24¼
Goodyear Tire & Rubber, pfd.....	45	44½	44¾
Kelly-Springfield Tire, com.....	31¼	30¾	30¾
Kelly-Springfield Tire, pfd. (8).....	87	87	87
Kelly-Springfield Tire, pfd (6).....	77½	77½	77½
Keystone Tire & Rubber, com.....	3¾	3⅝	3⅝
Lee Rubber & Tire, com.....	15⅞	15⅞	15⅞
United States Rubber, com.....	39¼	39⅛	39⅛

Akron Rubber Stock Quotations

Quotations of January 22, supplied by App-Hillman Co., Akron, Ohio:

	Last Sale	Bid	Asked
American com.....	7¾	7½	10
American pfd.	50	...	35
Amazon com.....	1¾	1¼	2¼
Firestone com.....	71	70	73
Firestone 6% pfd.....	92½	92½	94
Firestone 7% pfd.....	90	90	91
General com.....	175	160	175
General 7% pfd.....	98	98	...
Goodrich 6½s	99¾	99½	100
Goodyear com.....	11⅛	11	11¼
Goodyear 7% pfd.....	44¾	44	45½
Goodyear 1st Mtg. 8s.....	117	116¾	117¼
Goodyear deb. 8s.....	103	103	103½
India com.....	66	68	75
India 7% pfd.....	80	75	82
Mason com.....	4	3½	4½
Mason 7% pfd.....	27	26	28
Marathon	2	...	2
Miller com.....	72¼	72	76
Miller 8% pfd.....	95	95	97
Mohawk com.....	6	6	10
Mohawk 7% pfd.....	40	48	...
Rubber Products.....	10	10	11
Seiberling com.....	5	4¼	5¼
Seiberling 8% pfd.....	38	38	45
Star com.....	8	...	15
Star 8% pfd.....	30	...	30

The Rubber Trade in the East and South

Manufactured Goods

Tire production in January continued at essentially the same rate as in December. Increased schedules are expected to become effective in February.

In mechanical goods lines prices have been advanced about ten per cent. This increase was overdue and has served to brighten the outlook for manufacturers now operating with a fair volume of orders. The insulated wire division is reported to have experienced a slight seasonal decline in business during December. The turn of the year, however, brought improvement in the supply of orders.

Heel manufacturing business has improved with increase of prices by the large producers. Heels remain sharply competitive in price even in high grades. Automobile topping and proofed goods are going well, reflecting the prosperous condition of the automotive industry.

The manufacturing season for winter footwear was not lengthened by much supplementary consumer demand owing to the mild and open winter. Some rubber shoe factories are reported closed or busy only in their tennis and sport shoe departments.

J. Newton Gunn Heads Efficiency Organization

J. Newton Gunn, formerly president of the United States Tire Co., and vice president of the United States Rubber Co., is now as an efficiency engineer maintaining offices at 247 Park avenue, New York, N. Y., his work to include the organization, valuation, and management of industrial properties. In the year 1901 he founded a somewhat similar corporation under the name of Gunn & Richards, and the company's activities at that period brought Mr. Gunn into touch with many of the leading industries of the country.

Although thus widely known as an efficiency expert and production engineer, as for example in his administration of the affairs of the Studebaker corporation, where he eventually became general manager, Mr. Gunn has also held positions of importance in the rubber industry, where his capabilities as an executive first brought him to the attention of officials of the United States Rubber Co. Among his many and varied activities Mr. Gunn also took a deep interest in the subject of highway development, and was one of the directors and founders of the Lincoln Highway Association, becoming in 1921 the president of that organization.

Tucker Rubber Corporation

A new organization recently formed to take over the mechanical goods department of the Federal Rubber Co., Cudahy, Wisconsin, will be known as the Tucker Rubber Corporation, the general offices and factory being at 32-36 Spencer street, Buffalo, New York, the former location of the Madison Tire & Rubber Co. Machinery and equipment for the new concern have been purchased from the Federal Rubber Co., and installation is now nearly completed.

Executives of the Tucker corporation include the following: Albert Y. Tucker, president; S. E. Abramson, vice president in charge of sales and formerly connected with the United States Rubber Co., and later with the Federal Rubber Co.; and E. L. Stimson, vice president in charge of manufacturing, formerly general superintendent of the Mechanical Rubber Co., and later holding a similar position with the Federal Rubber Co. A number of important Buffalo interests are represented on the new company's board of directors, one of these officials being Benjamin H. Pratt, vice president of The Fisk Rubber Co.

Ajax Rubber Co.'s New Officers

At a recent meeting of the board of directors of the Ajax Rubber Co., 218-222 West 57th street, New York, N. Y., Joseph C. Weston, president of the organization, was made chairman of the company's Board of Directors in addition to his present title. The new appointment comes as a recognition of Mr. Weston's constructive and aggressive policies which during the year 1923 have resulted in maintaining the company in excellent financial condition, in spite of the ordeals which during that period the tire industry as a whole has undergone. George E. Shipway, formerly assistant to the chairman of the board, was also elected vice president and general manager, while Enders McClurg Voorhees, in addition to his present duties as auditor, becomes assistant to the president and chairman. E. L. Fries, treasurer, has been made secretary, also.

New York

Paul M. Warburg, chairman of the board of the International Acceptance Bank, 31 Pine street, New York, N. Y., has been recently reelected a member of the Federal Advisory Council, which is made up of one member from each Federal Reserve District. For several years Mr. Warburg has been connected with the council, having been preceded by J. P. Morgan and A. Barton Hepburn.

A brokerage business in crude rubber will be conducted by J. S. Rodenbough & Co., 25 Beaver street, New York, N. Y., a new organization established by J. S. Rodenbough and J. W. Herron, both formerly connected with F. R. Henderson & Co., Inc. The new concern will also act as eastern representative of J. W. Herron & Co., Akron, Ohio, and E. T. Meyer & Co., Chicago, Illinois.

Alfred L. Wendover has been recently appointed manager of the New York City branch of the Dunlop Tire & Rubber Co., Buffalo, New York. Awaiting the establishment of permanent offices and warehouses, Mr. Wendover will make his temporary headquarters at 25 West 45th street, the metropolitan distributing office for Dunlop golf balls.

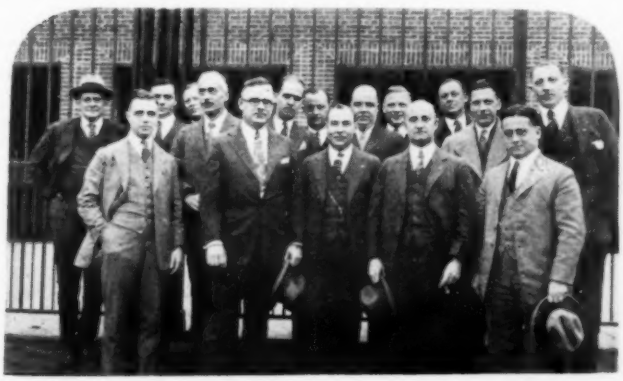
Steady production is now being maintained at the plant of the Keystone Tire & Rubber Co., 192nd street and Bailey avenue, New York, N. Y., and it is anticipated that sales will continue to be as encouraging as at present. D. W. Whipple is president and George A. Dorfman is general manager.

H. J. Woodard, sales manager of The Republic Rubber Co., Youngstown, Ohio, is now located at 33 West 60th street, New York, N. Y., and is in charge of sales of Republic tires and tubes.

The American Schaeffer & Budenberg Corporation, Berry and South Fifth streets, Brooklyn, New York, has recently acquired the important assets, including patents, trade marks, trade names and good will of the Hohmann-Nelson Co., Eau Claire, Wisconsin. The personnel of the latter concern has been retained, while the production of its specialties, Honeco thermometers and temperature controllers, will be advanced by the many facilities of the Brooklyn plant. It is believed that by this merging of manufacturing interests better service can be given by both companies to their various patrons.

A new concern under the name of Paul Elbogen & Co., Inc., 24-26 Stone street, New York, N. Y., has been recently organized in order to conduct business as an importer and dealer in crude rubber and kindred products. Mr. Elbogen has recently severed his connection with Fred. Stern & Co., Inc.

J. J. Sotomayor, formerly export manager for the Madison Tire & Rubber Co., will handle export business at the New York City branch maintained by The Mohawk Rubber Co., Akron, Ohio.



Branch Managers of Dunlop Tire & Rubber Co., in Conference at Buffalo, N. Y. Extreme Left—E. H. Kidder, General Sales Manager

A. R. Small, vice president of Underwriters' Laboratories, will in the future make his headquarters at the organization's New York City offices, 109 Leonard street, where in the interests of the Laboratories he will meet clients or friends.

The Beacon Tire & Rubber Corporation has purchased from the receivers all the plant, property, good will, etc., of the former Beacon Tire Co., Beacon, New York, and will specialize in the manufacture of Beacon Toron-treated cord tires. These casings will be equipped with the Dimpled Pneumatic Compression Leak-Proof tube, also a production of the new company. Executives of the Beacon organization include: F. W. Warner, formerly president of Oakland Motor Car Co., and vice president of General Motors Corporation; W. B. McCallum, vice president; and A. A. Archbold, secretary.

William B. Blodgett is acting in the capacity of factory manager of the Hudson Tire & Rubber Corporation, Yonkers, New York, instead of being, as incorrectly stated in a previous issue, connected with a Trenton, New Jersey, organization.

Eastern and Southern Notes

F. L. Lamson, previously connected with the Diamond Rubber Co., and later with The B. F. Goodrich Co., has been recently appointed sales manager of The Norwalk Tire & Rubber Co., Norwalk, Connecticut. Mr. Lamson a short time ago presided at a sales conference held at the main offices of the Norwalk organization, when representatives of the company were in attendance from all parts of the country in order to discuss sales activities and advertising plans for the year 1924. Executives of the Norwalk organization include the following: William B. Miller, president; David Spence, vice president and general manager; and F. L. Lamson, secretary, treasurer, and sales manager.

The Russell Manufacturing Co., Inc., Middletown, Connecticut, manufacturer of beltings, brake linings, elastic webbings, etc., maintains branches in New York City, Detroit, Chicago, and Atlanta, Georgia. In the latter city S. T. Gardiner is in charge as manager of the Southern division, with offices at 493 Whitehall street. Eugene P. Thornton has been recently appointed as his assistant.

J. J. McLaughlin, formerly with the Vulcan Proofing Co., and now connected with The British-American Manufacturing Co., Inc., Springdale, Connecticut, has been recently placed in charge of the latter company's sales department.

The F. & M. Fabric Co., Inc., 20 William street, Middletown, Connecticut, is now engaged in the manufacture of both elastic and non-elastic cords and braids. Special requirements will soon necessitate the commencement of night operations. Officials include: John Feulner, president; Lulu E. Feulner, treasurer, and William H. Marks, secretary and general manager.

In order to care for increased business the Yarnall-Waring Co., manufacturer of hydraulic valves and various power plant devices, and with main offices at Chestnut Hill, Philadelphia, Pennsylvania, has recently begun making a considerable extension to its manufacturing plant.

The Amazon Rubber Co., 1540-42 Callowhill street, Philadelphia, Pennsylvania, is engaged in the manufacture of "Jem" rubber repair, a material said to be particularly adapted to sealing cuts in automobile tires. James E. Smith is the general sales manager of the organization.

Because of an increasing volume of business in the Southwest, the Star Rubber Co., Akron, Ohio, has organized its Dallas, Texas, branch into an independent operating unit, with Thomas F. Meagher in charge. In this section of the country a number of new dealers have also been stationed, and representatives of the Star organization are now to be found in the states of Texas, Louisiana, Georgia, Tennessee, South Carolina, North Carolina, Virginia, Arkansas, Missouri, Oklahoma, South Dakota, and Kansas. C. A. Reece is in charge of the company's sales department.

The Delion Tire & Rubber Co., Baltimore, Maryland, was on December 27, 1923, adjudicated bankrupt, and George A. Solter was appointed receiver. The first meeting of the creditors was held at the United States District Court, Baltimore, Maryland, on January 25, 1924.

As the result of increasing business The National Tire & Rubber Co., East Palestine, Ohio, has found it necessary to establish a southern branch at Atlanta, Georgia. It was considered advisable to form a separate corporation to look after this southern territory, and G. D. Agnew has been made president of the new concern, C. W. Helman is vice president, and Joseph M. Clark, Jr., is secretary.

The Paul Rubber Co., Salisbury, North Carolina, has recently purchased the factory at Ardmore, Oklahoma, formerly owned by the Ardmore, Akron Tire & Rubber Co. Production at the new plant will begin during the coming summer, and the output of air-gage tubes and "Clover Leaf" tires will be used in supplying the needs of the middle and far west.

The Morgantown Rubber Co., Morgantown, West Virginia, has recently purchased and will operate the plant, also in Morgantown, formerly maintained by the Rubber Production Co. Under the new management a line of high grade cord tires will be manufactured.

The Rubber Trade in New Jersey

Manufactured Goods

The manufacture of balloon tires has greatly increased business at one Trenton plant, while another is preparing to turn them out on a large scale. The Empire Tire & Rubber Corporation has been manufacturing balloon tires for some weeks and Empire salesmen were recently supplied with price lists so that they may fill orders for "Murray Comfort Cords" as they are known.

The Ajax Rubber Co. is preparing to serve several large automobile manufacturers with balloon tires in the near future, the Trenton and Racine plants being fully prepared to turn them out.

The other Trenton tire manufacturers have not yet begun balloon tire production, but will shortly turn out the new casings. Manufacturers say the new tires are here to stay and that when autoists become used to them they will never return to the old style cord and fabric tires.

Trenton rubber manufacturers are now turning their attention to filling up the warehouses with both fire and garden hose for spring and summer trade. Large orders for hose are being received by many of the plants and many million feet of the product will be made between now and July 1.

Trenton Tire Dealers' Association

Tire dealers of Trenton, New Jersey, met January 9 at the Stacy-Trent Hotel, Trenton, and formed the Trenton Tire Dealers' Association. The organization began with 25 members and the initiation fee, while the charter is open, was fixed at $10. The object of the association is mutual protection to its members and the public, encouragement and protection of the trade and the development of the tire business on right and proper lines.

The following officers were elected: President, Frederick Petry, Jr., president of Petry Motors Sales Corporation; vice president, Bernard Sweeney, C. & S. Tire Shop; secretary, George Yosco, Capital Tire Co.; treasurer, Philip Papier, Papier's Auto Supply Co. Trustees were chosen as follows: Israel Richmond, Ulric De Blois, Joseph Papier, John L. Brock, Harry Raube and Herman Fineburg.

President Petry named a credit committee to sort out the "dead beats" among customers. It is also proposed to have all tire dealers close their stores at 6 p. m. with the exception of Saturday. A constitution and by-laws were adopted. The new organization will meet the first Wednesday in each month. Preceding the meeting dinner was served.

Trenton Notes

The Thermoid Rubber Co. recently entertained the members of the office force at the annual banquet held at Trenton. About seventy-five were present. The toastmaster was Richard Kirk and several responded to toasts. A musical program was given at the close of the banquet. The rôle of Santa Claus was played by Edmund W. Craft, purchasing agent for the concern, who distributed gifts among the employes.

B. M. Cullen has recently become connected with the Thermoid Rubber Co., Trenton, New Jersey, as manager of that company's mechanical goods division. The Thermoid organization will also maintain offices and stock rooms at 114 South Second street, Philadelphia, Pennsylvania.

William W. McMahon, general manager of the Ajax Rubber Co., feels optimistic over the future and says the outlook for the coming season is very good. The big plant at Trenton is now running normally and orders are increasing.

The Thermoid Rubber Co. has increased output both in tires and mechanical goods. The concern has not yet taken up the balloon tire proposition but expects to shortly. The company reports an increase in orders for tires and tubes and announces that it is about 18,000 tubes behind.

The Bergougnan Rubber Co. reports an increase in the manufacturing schedule during the past month and is not looking for any decrease in output from now on.

The Mercer Rubber Co. states that while business could be better, conditions have been very good and there is no cause for complaint. I. Ely Reed, secretary of the concern, is optimistic over the future.

The Spartan Rubber Co. is running three shifts of tiremakers five days a week and reports no let up in orders.

Business at the plant of the Whitehead Brothers Rubber Co. continues good, the fire hose department being particularly busy.

Edmund H. Zehner, former garage dealer, has purchased the plant of the In Tire Inspection & Repair Co., Trenton, from Augustus Hellerman.

Both the Murray Rubber Co. and the Empire Tire & Rubber Corporation are very busy and the plants are running to capacity. The Empire company is operating twenty-four hours a day and is unable to fill orders. The mechanical departments are also running full handed.

Jemison & Post, Trenton agents for United States tires, ran a novel contest recently. A Columbia bicycle equipped with United States tires was given to the person who returned to the company's store the largest number of its advertisements found in the daily newspapers. The advertisements were small and inserted in all parts of the papers.

Since having been placed in the hands of J. P. Bird and H. J. Haigh, receivers in equity, conditions at the plant of the United & Globe Rubber Corporation, Trenton, New Jersey, have improved materially. As the result of a careful outlay for needed improvements, the factory is now in splendid condition for operation, while orders upon the company's books amount to approximately $89,409. Contracts covering the first quarter of the year also represent a total volume of $146,020.

New Jersey Notes

The Somerset Rubber Reclaiming Co., East Millstone, New Jersey, will extend its operations by opening a plant at New Brunswick, New Jersey, having purchased the factory of the Aetna Rubber Co. at sheriff's sale. The Somerset company will manufacture hard rubber dust, used in making radio supplies, batteries, etc. The East Millstone plant will continue to operate with the same force as heretofore. Israel Laurie is president of the Somerset company, while Irving Laurie is secretary.

The Feroda & Asbestos Co., Inc., Port Chester, New York, has

purchased a large plot of ground at New Brunswick, New Jersey, and will erect a modern plant for the manufacture of asbestos brake lining, asbestos insulators and asbestos cloth. The company is controlled by the Turner family, who engaged in England in manufacturing asbestos brake lining, etc. With the completion of the first of the three units 200 hands will be employed.

The annual banquet of the salesmen of the Lambertville (N. J.) Rubber Co. was held recently at the Stacy-Trent Hotel, Trenton. Those who attended were C. E. Murray, general manager; William T. Scott, J. D. MacKay, George Harvey, C. C. Alexander, Arthur Tinsman, C. P. Day, M. A. Perkins, J. S. Gagnon, L. J. Glasgow and D. W. Neiser, salesmen, who cover the nearby territory.

The Lambertville (N. J.) Rubber Co. recently shut down the plant for a week to allow the installation of a new magnetic clutch, which is one of the safety measures adopted by the State of New Jersey. Buttons are now installed about the plant so that the mill room machinery can be stopped at quick notice.

Having recently purchased a four-story concrete building situated at the corner of Eighth and Henderson streets, Jersey City, New Jersey, the American Rubber Products Corporation, 37 to 41 Summer avenue, Newark, New Jersey, is now equipping the plant with modern machinery. However, until operations can be begun at this factory, probably about March 1, the company will remain in its present location. In addition to plumbers' supplies and specialties the company will manufacture golf balls as well as rubber tiling. A. Davis is president.

Frederic M. P. Pearse, receiver for the Dural Rubber Corporation, Flemington, New Jersey, recently reported a bid of $30,000 for the corporation's plant and equipment from William C. Ehrenfeld, president of the old corporation and general manager of the plant. Vice Chancellor Backes made an order authorizing its acceptance. The concern's liabilities were reported to amount to about $30,000.

After February 1, D. A. Comes will represent the Birmingham Iron Foundry, Derby, Connecticut, manufacturer of rubber mill machinery, in another location, the new branch address being 403 West Grove street, Westfield, New Jersey. Mr. Comes has been selling the Birmingham line of sheet metal working machinery and he will continue to handle that line in addition to taking care of the rubber trade in the New Jersey and New York territory.

Frederick J. Maywald, consulting rubber technologist, has moved to larger and more suitable quarters at Maine and William streets, Belleville, New Jersey.

The plant and equipment of the Stanwood Rubber Co., Elizabeth, New Jersey, has been purchased by the Magnum Rubber Products Corporation, of Garfield, New Jersey. The plant will reopen soon with between 400 and 500 hands. The Magnum Company purchased the buildings and equipment from the Union County Trust Co. and the Hudson County National Bank, which bought them at a receiver's sale last September after foreclosure proceedings had been instituted to satisfy a first mortgage for $300,000.

Articles of incorporation have been filed at Trenton by Dressler Auto Supply Company, of 800 Broad street, Newark, New Jersey. The concern has 100 shares no par value and will deal in automobile tires and tubes, automobile and battery accessories. The incorporators are Abraham J. Ginsburg, Samuel S. Ferster and T. Cyrill Butler, all of 800 Broad street, Newark, N. J.

The Rubber Trade in Rhode Island

Unusual weather conditions have held up production in the rubber plants of Rhode Island, especially in those whose principal production is footwear. For the past four months operations have been on a four-days-a-week schedule, but improvement in business conditions about the middle of January indicated better prospects in the immediate future.

Receivers have been appointed for both Connecticut and Massachusetts for the Manhasset Manufacturing Co., manufacturers of tire and fabrics at Putnam, Connecticut, and Taunton, Massachusetts, and formerly of Warren, Rhode Island.

The Manhasset Co. is capitalized at $3,501,600. E. V. Livesey and Joseph D. Milne, both of Fall River, Mass., are listed in the textile blue book as president and secretary, respectively. On July 3 last the company ceased operating a leased plant at Warren, Rhode Island, and W. M. Vermilye, then treasurer, announced that a general policy of retrenchment had been decided upon. Application for the appointment of receivers was made by a creditors' committee, and John B. Strongman of the City Manufacturing Co., New Bedford, Massachusetts, and Artemus C. Townsend of Boston were named.

Business difficulties are given as the reason for the receivership application, which was granted by Judge L. P. Waldo Marvin, of the Windham County Superior Court of Connecticut.

The stock of the Manhasset Co. is in three classes, namely: common, $100 par; 7 per cent cumulative preferred at $100 par, and 8 per cent cumulative preferred, to the amount of $1,460,000. More than 70 per cent of each class has been deposited with the protection committee by agreement.

During a period of 22 years the Columbia Narrow Fabric Co., at Shannock, producing elastic webbing, has had to shut down but two weeks because of lack of work. It is now operating on a full time schedule and the expansion and improvements that have been under way at the company's plant for several months are now practically complete. There are, however, a number of additional dwelling houses for the employes and several buildings for the mill plant to be constructed. The oil burning system which has been installed to displace coal has been given an exhaustive trial and is satisfactory in every way. Twelve new dwelling houses with all modern conveniences are now well under construction by the corporation on its property at Columbia Heights which, when completed, will afford accommodation for about 46 more families.

Dr. R. S. Quinby, service manager of the Hood Rubber Co., Watertown, Mass., in an address before the Providence Engineering Society on the subject of "Methods of Stabilizing Employment," advocated physical examinations for employes when being hired; equitable rating; systematic methods of promotion, and extra compensation for extra effort. Dr. Quinby declared that the whole employment problem in industry today was the suspicion existing between employer and employe. He advocated a central employment bureau for large concerns, although urging that the foreman of the department for which a man was hired should be given the right to choose the worker. He laid special stress on the examination of prospective employes as to their physical fitness for the work which they were expected to do.

A weave shed is to be added to the property of the Loray Mills, at Gastonia, North Carolina, belonging to the Manville-Jenckes Co. of Pawtucket. The contract has been awarded to the Aberthaw Co. of Boston, which has built several other additions to the company's mill property. The new addition will add approximately 25,000 square feet to the plant and will house 126 additional looms. The erection of this shed is in connection with the improvement plans inaugurated by the mill corporation, when it acquired the North Carolina property over a year ago.

The North End Used Tire Co., 759 North Main street, Providence, is owned and conducted by Benjamin Alper and William Trumble, according to their statements filed at the city clerk's office.

The Bourn Rubber Co. is erecting an addition to its one-story storage department at 58 Waldo street, Providence. In conformity with the remainder of the structure, the addition is of steel.

Operations have been recently begun at the plant of the Peace Dale Braiding Co., South Kingston, Rhode Island, the company

having been lately organized for the manufacture of elastic braid. George P. Clark is president.

The Rubber Trade in Massachusetts

Manufactured Goods

Continuance of the open winter with snow only in the most northern and mountainous sections of the country has put rubber footwear manufacturers on short time and low production schedules. The season for active work on advance orders on canvas footwear is not far distant, however. Heel business is in good volume at highly competitive prices.

The mechanical, novelty and specialty trades are now in moderately seasonal volume, the first named at close margins. Most other lines of the industry are active on a keenly competitive basis.

The remarkably mild weather has brought but slight let-up in the driving season and sale of new cars, with consequent good tire business, especially among manufacturers having relatively small capacity. Tire manufacturers generally are anticipating a year of sound and genuine prosperity. Proofers of artificial leather and automobile fabrics are all busy with ample advance orders.

Building activities and insulated wire and electrical goods demand show little abatement. Building operations throughout the country in December were 18 per cent above December, 1922, as against about 30 per cent for the months of October and November. Boston had a notable year in construction work, permits having been granted for over $40,000,000 worth of buildings, including 725 new dwellings.

Druggists' sundries and hard rubber goods are seasonally active, though volume is decreasing somewhat.

New England Industries in Motion Pictures

Under the auspices of the Boston Post and the National Motion Picture Bureau of Boston, and with the endorsement of President Coolidge, twenty educational motion pictures will soon be released for showing in hundreds of theaters. They are representative of as many different leading industries of New England and are intended to demonstrate and promote New England interests, history and traditions. Among them, the tire industry is represented by the Converse Tire Co., Malden; the textile industry by Pacific Mills, Lawrence; and the shoe industry by the United Shoe Machinery Corporation, Boston. A total of 862 cash prizes aggregating $10,000 will be awarded for the best letters received from persons seeing these pictures and telling what pleased and impressed them most about them.

Meade Rubber Sales Co.

The Meade Rubber Co., rubberizers of cloth, Stoughton, Massachusetts, will also manufacture waterproof clothing, and have organized a $10,000 subsidiary company known as the Meade Rubber Sales Co., to handle this business. There are sales branches in Boston, Massachusetts; New York, N. Y.; St. Louis, Missouri, and Chicago, Illinois. "Gos-mer-ett" is the registered trade name of the new waterproof coats and capes recently placed on the market, as well as of the rubber coated fabric produced by a patented process of which they are made.

During the past summer a two-story brick factory addition was erected which doubled the company's capacity. Most of it was devoted to the fabric department, including "Gos-mer-ett" cloths, garments, and hospital sheetings, although a substantial increase was made in capacity for the production of heels and specialties for the shoe trade. The company's volume of business for the year 1923 was the greatest in its history.

Boston

The Bloomingdale Rubber Co., manufacturers of reclaimed rubber and rubber heels, Butler, New Jersey, announce the appointment of M. J. Minus as New England sales manager, succeeding J. J. Batterman. The firm's local office is at 139 Lincoln street.

The United Shoe Machinery Co. announces with satisfaction that 5,000 of its employes have responded to the recent offer of the company to permit them to buy stock on a partial payment plan. The necessary stock to supply the demand has been purchased and is now held by the company.

T. L. Howley has been recently appointed manager of the Boston, Massachusetts, branch maintained by The Mohawk Rubber Co., Akron, Ohio. Mr. Howley was previously connected with the Norwalk Tire & Rubber Co.

Chester I. Campbell, well known as one of the most successful industrial show promoters in the country, announces that an International Rubber Exposition will be held in Boston in October, 1925. Definite plans are in the making and Mr. Campbell's office organization in the Park Square Building is developing them rapidly. Mr. Campbell's long and successful experience with such important annual expositions as the Automobile, Textile, Home Beautiful, Graphic and Knitting Arts shows have brought together under his direction the knowledge and personnel necessary to stage a rubber exposition on a par with his other great enterprises.

During the last six months an increase of business has necessitated tripling of production by the New England Tire & Rubber Co., Holyoke, Massachusetts, manufacturers of "Holyoke" cord tires and tubes. The company's plant is now running on a schedule of twenty-two hours a day, and a specialty is being made of the manufacture of a new type of flat tread. Cunningham & Berrien, 250 West 57th street, New York, N. Y., represents one of the company's most successful distributors, while C. S. Huntley is the general sales manager of the New England organization.

M. A. Turner, vice president of the Stedman Products Co., South Braintree, Massachusetts, made addresses recently before the Rotary Clubs of Braintree and Quincy, Massachusetts, taking as his subject, "Rubber," and particularly the important part played by the rubber reclaiming industry in its work of conservation. The audiences showed much interest in the exhibits, which represented the various stages of reclaiming, and finally the inclusion of the reclaimed rubber in a newly manufactured automobile tire. During the Quincy address a special feature was made of the mottled rubber flooring as manufactured by the Stedman Products Co.

George H. Ellinwood, formerly chief chemist of the Federal Rubber Co., will be associated in a similar capacity with the Boston Woven Hose & Rubber Co., Cambridge, Massachusetts.

Albert M. Creighton, a director of the Boston Woven Hose & Rubber Co., Cambridge, Massachusetts, has been recently elected a director of the National Shawmut Bank of Boston.

The Mohawk Rubber Co., Akron, Ohio, announces the recent appointment of T. L. Howley as manager of the company's Boston, Massachusetts, branch.

The Rubber Trade in Ohio

Manufactured Goods

Seasonal advances in production have brought tire output of the Akron district to approximately 95,000 tires a day with possibilities of some further increases during the coming month. This new figure compares with production of not more than 73,000 two months ago when output reached its lowest level for the year and 112,000 tires a day registered last year at about the same time when the peak for three years was being approached.

During the month Goodyear has increased its production ticket, according to semi-official advices, to more than 29,000 tires a day although output has not yet quite reached this mark. Mason Tire has gone to more than 4,500 a day with hopes of reaching 6,000 daily; Firestone is reported to have advanced to something over 25,000, while the Goodrich is reported to have exceeded 18,000 part of the period. The Seiberling Rubber Co. has gone to 1,800

tires a day which is a new high for more than six months, while some of the smaller companies have also shown advances in daily production.

In other departments business continued to be above what may be termed normal. The boot and shoe season was the best for years and sales were increased by the extreme cold weather which obtained during part of the month. Druggists' sundries sales, which were exceedingly good, were also aided by the cold and the changeable weather. Mechanical goods business not only held up but in some departments showed material advance.

Everything with the exception of prices could be viewed with optimism during the month, with indications that improvements rather than reverses were to govern the next few months of production.

General Tire & Rubber Co.'s Executive Personnel

Several important changes in the executive personnel of the General Tire & Rubber Co., Akron, Ohio, were announced recently at that company's annual meeting. Among these changes were the following: William O'Neil, formerly vice president and general manager, becomes president and general manager; C. J. Jahant, formerly superintendent, becomes vice president; W. E. Fouse, secretary, has been appointed vice president and assistant treasurer; while T. F. O'Neil, formerly a director, becomes secretary. M. O'Neil, president of the company since its organization, has resigned his office, but remains chairman of the board of directors, Charles Herberich was reelected treasurer, and W. J. Cahill assistant secretary.

Officials of the General organization report that the past year has been a very successful one, while there are even better prospects for 1924.

Activities of Mason Tire & Rubber Co.

On January 1 full production began at the Bedford plant of The Mason Tire & Rubber Co., Kent, Ohio. This factory has been idle during the last few months, but it is expected that production of approximately 3,000 tires a day will be reached early in February. At this plant a specialty is made of the manufacture of Ford tires.

The main plant at Kent is now running at about 65 per cent of capacity, but it is expected that by March 1 operations will be maintained at 100 per cent of capacity. Larger tires are manufactured at this plant where the capacity is 3,000 casings a day, but the tonnage exceeds the Bedford figures.

The company's textile plant at Kent is now running at about 75 per cent of capacity, and it is believed that by March 1 it also will be running at 100 per cent.

Two other busy plants are the two cotton mills at Quitman and Millen, Georgia, constituting the Western Reserve Cotton Mills Co., a corporation controlled by the Mason company and associates. Orders from the Mason company will probably keep both mills in full operation with a twenty-four-hour day schedule throughout the present year. Believing that still better tires will be produced in 1924, and that the next twelve months will see the largest tire consumption in the history of the industry, the Mason organization has entered the new year with confidence.

Successful Year for Miller Rubber Co.

The Miller Rubber Co. has completed a very successful year, according to semi-official advices indicating that sales for the past year are in the neighborhood of $27,000,000 which compares with net sales for 1922 of $24,764,000. Profits, it is predicted, will be substantially the same as last year when they were $2,439,000. The company has been able most of the year to operate its plant to capacity including the $325,000 addition, paid for out of earnings and added to the plant early in 1923. Capacity of the plant is very close to 10,000 tires a day at the present time. The year has seen a further expansion of the company's novelty business which it has been emphasizing during the past few years.

Williams Foundry Reorganizes

A newly organized Williams Foundry & Machine Co. with a capitalization of $500,000, has taken over the business of the former company of the same name. J. K. Williams, head of the original Williams company, together with H. L. Williams and C. Franz are among the officials of the new company. H. L. Williams will serve as general manager, vice president and secretary and will be assisted by F. C. Vandergrift. F. E. Holcomb and Charles Raymann, together with the officers already named, are directors. The company will continue making a general line of rubber machinery.

Akron Notes

William Cooper & Nephews, Inc., manufacturing chemists, with main offices at 152 West Huron street, Chicago, Illinois, have recently established a warehouse and offices at 134 East Miller avenue, Akron, Ohio, in charge of Robert A. Sperry. At this new branch a complete stock of rubber manufacturers' chemicals and pigments will be carried.

The resignation of F. E. Holcomb as president and general manager of The Williams Foundry & Machine Co., Akron, Ohio, was announced at the recent annual meeting of the stockholders of that organization, to take effect January 1, 1924. Mr. Holcomb has not announced his future plans.

Barnwell & Co., specializing in cotton goods for manufacturers, have recently opened offices at 313 Ohio Building, Akron, Ohio. E. H. Barnwell is president of the new organization, and Robert Guinther is secretary.

Northern Rubber Co., which purchased the former Biltwell Rubber Co. plant in Barberton last year is now in production on a small scale with prospects of increasing gradually during the next few months. The company will enter the balloon tire field, according to present indications. L. J. Scott, founder and formerly president of the Amazon Rubber Co., is president of the new company.

Remarkable advances have been lately reported by the Lambert Tire & Rubber Co., Akron, Ohio, the gross sales for 1923 showing a gain over 1922 of over 100 per cent. During last year the company tripled production, while through the winter months the plant will carry forward operations on a schedule of three eight-hour shifts. At the present time additional mill equipment is being installed that by February will increase production 33 1/3 per cent. G. M. Collette is general manager.

Winfield Scott has recently become associated with The Rubber Service Laboratories Co., 611 Peoples Savings & Trust Building, Akron, Ohio, his work to be along the lines of research in connection with organic accelerators. Mr. Scott, who was formerly in the employ of the Goodyear and Quaker City rubber companies, is the author of a number of papers dealing with his particular specialty.

Goodyear Tire & Rubber Co. announces that it has brought an organization from England to produce golf balls which will equal those hitherto imported from that country. John Harvey of Edinburgh, Scotland, is head of this new organization. Production of the new balls is already under way and provisions have been made for their nationwide distribution. Goodyear thus becomes the second large producer of golf balls in the rubber center.

Harvey S. Firestone, president of the Firestone Tire & Rubber Co., has confirmed the report that the company is now operating a tire building machine upon which between 65 and 70 tires can be made by five men in an 8-hour day. The machine's production is said to be the highest ever reached in tire building.

The annual statement of The National Tire & Rubber Co., Akron, Ohio, shows an increase in the company's sales of $500,000, with net profits from operations of $112,000. The surplus is estimated at $95,309.70, current liabilities at $163,553.36, and

current assets at $476,192.83. At the annual meeting of the stockholders, the members of the old board of directors were unanimously reelected, while the following officers were chosen for the ensuing year: C. L. Merwin, president; C. E. Miley, vice president and general sales manager; C. W. Helman, treasurer, and L. M. Kyes, secretary.

Production will be started within a month by the Akron Rubber Reclaiming Co., composed of Akron and Barberton rubber men who recently leased the O. C. Barber cement plant at Barberton to produce reclaimed rubber. B. O. Ettling, formerly connected with the Portage Rubber Co. and a director in the Seiberling Rubber Co., is president of the new company. Installation of machinery is nearing completion.

The Goodyear Tire & Rubber Co. and the Firestone Tire & Rubber Co. has each established at the Municipal University of Akron a fellowship of $500 a year in the study of rubber chemistry open to graduates of standard American colleges. Details of the governing conditions may be obtained from H. E. Simmons, professor of chemistry, Municipal University of Akron.

Trump Brothers Rubber Co. announces the production of tires on a small scale in the near future, following more than a year of experimentation and testing of the new product. The output with present capacity will be in the neighborhood of 100 tires a day. The company has specialized in the production of belts and other rubber sundries, producing 34,000 belts a day.

The Seiberling Rubber Co., Akron, Ohio, is increasing tire production and also experimenting with tractor tread tires and Seiberling rubber wheels for automobiles, the latter product having already been placed on the market in small quantities. H. L. Post is sales manager.

Ohio Notes

The Canton Tire & Rubber Co., with a capitalization of $250,000, will operate the former Gordon Tire & Rubber Co., Kent, reported to have been purchased for $75,000. Production will be on a small scale with increases to be made as business demands. Raymond W. Kent, formerly vice president of the Republic Rubber Corporation, and A. R. McConnell, formerly secretary of the Knight Tire & Rubber Co., are among the officials.

Increased production of automobile tires and mechanical goods is the plan of the Republic Rubber Corporation, Youngstown, Ohio, following reorganization of personnel and equipment. It is reported that the company will place the plant on a competing basis with any company in the industry. At the present time employment is gradually increasing and it is estimated that a maximum of 1,800 men and women will be employed before the end of the winter. Production at the present time is approximately 75 per cent of capacity. John Kearns is production manager.

The Mid-West Rubber Co., East 18th street and Chester avenue, Cleveland, Ohio, will take possession of the plant formerly owned by the Polson Rubber Co., also in Cleveland, and located at 1657 Doan street. Equipment is now being installed for the manufacture of automobile floor board mats and running board mats, as well as a line of molded specialties. Executives of the Mid-West company include: George A. Field, president and general manager; L. V. Kimbel, secretary, and H. M. Swancott, general sales manager.

The Rubber Products Co., Barberton, Ohio, reports encouraging prospects for the year 1924, while at the present time the plant is very busy with the manufacture of druggists' sundries and bathing caps. J. B. Chisnell is general manager.

Increased sales, profits, and output of tires and tubes with no additional factory expense is the report for the fiscal year as rendered by The New Tread Tire Co., East Palestine, Ohio. Throughout last year a 24-hour schedule was maintained and prospects for 1924 indicate the same activity during the present year. At the annual meeting all directors were reelected and the following officers chosen: S. W. Tidd, president; E. P. Altenburg, vice president and general manager; W. O. Wallace, secretary; and O. W. Altenburg, treasurer.

The Rubber Trade in the Midwest

Midwest Rubber Manufacturers' Association

The regular monthly meeting and also the fifth annual dinner of the Midwest Rubber Manufacturers' Association were held on January 29 at the Hotel Morrison, Chicago, Illinois. At the luncheon a number of "celebrated individuals" appeared, and represented an amusing feature. An elaborate and enjoyable entertainment had also been prepared by the banquet committee.

The meeting of the Board of Directors and the executive sessions were combined and called to order at 10:30 a. m. Among the subjects discussed were the question of the elimination of the 5 per cent excise tax, the standardization of balloon tire sizes, present and future prices of fabrics, rubber, and chemicals, as well as various other matters of interest to the industry.

Midwestern Notes

With steady production assured for the coming months the Black Hawk Tire & Rubber Co., Des Moines, Iowa, estimates that its present business is 33 1/3 per cent greater this season than last. Additional factory equipment is soon to be installed, and officers of the organization state that the general increase and plant output this year will probably be 50 per cent greater than that of 1923. At the recent annual meeting the following executives were chosen: William Moran, president; A. M. McColl, vice president; J. F. Griffin, vice president; Fred German, secretary and treasurer; Paul I. Anderson, factory manager and purchasing agent; and Harry G. Curtis, sales manager.

Executives of The Mohawk Rubber Co., Akron, Ohio, report that J. P. Egan has become successor to H. L. Smith, the latter remaining with the organization in another capacity. Mr. Egan will be in charge of the company's Chicago, Illinois, offices.

The manufacturing facilities of the Harrison Raincoat Co., 1622 West Division street, Chicago, Illinois, are being greatly increased by the taking over of an additional plant, also in Chicago, at 2013 West North avenue, this purchase supplying the company with 5,000 more square feet of manufacturing space. At the West Division street plant the shipping facilities are being quadrupled, and the office space doubled, while attractive salesrooms are also being laid out. With the installation of new machinery the factory is said to have hereafter a minimum capacity of 1,000 coats a week. Arvid Johnson is general sales manager while T. Campion is in charge of the rubberized coat department.

Under the name of E. T. Meyer & Co., a new organization, headed by Edward T. Meyer and Albert L. Meyer, both formerly connected with F. R. Henderson & Co., Inc., has opened offices in the First National Bank Building, Chicago, Illinois. A brokerage business in crude rubber will be conducted by the new concern, which will also act as representative of Brighton Mills, Passaic, New Jersey.

The Union Asbestos & Rubber Co., 351 East Ohio street, Chicago, Illinois, has recently purchased the property at Cicero, Illinois, formerly owned by the LaSalle Woodworking Co., and will utilize the present buildings as plant extensions. A new factory and warehouse is to be erected in the early spring.

The Latex Tire & Rubber Co., Fond du Lac, Wisconsin, has succeeded a former organization, and will begin its plant output about February 1. Executives of the company claim that production commences under very favorable conditions, with able assistance from dealers and distributors. John C. Kiley is sales manager.

December represented the best month in the history of the Wenstone Rubber Products Co., Chippewa Falls, Wisconsin, while January production has been still further increased by 33½ per

cent. The factory is now working on an eleven-hour daily schedule, and it has become necessary to omit Saturday half-holidays. J. L. Walton is local manager.

The Elkhart Rubber Works, Elkhart, Indiana, has recently increased its capitalization from $100,000 to $200,000. The company manufactures a line of high grade mechanical rubber goods and molded specialties. Particular attention is also given to the production of pump valves.

The officers and directors of the Standard Four Tire Co., Keokuk, Iowa, were reelected at the annual meeting. J. B. Gabeline, president, reports a 64 per cent increase in business over the year 1922; 1922 was 60 per cent greater than 1921; and 1921 was 54 per cent over 1920. The 1923 earnings were at the rate of 8 per cent on the preferred and 15 per cent on the common stock.

The Rubber Trade on the Pacific Coast

Manufactured Goods

Exceptionally mild, dry weather prevailing throughout the Pacific Coast territory generally accounts largely for the well sustained trade in tires, apart from the fact that seasonal price average has been quite low. The latter factor has operated against manufacturers of tire repair materials, nearly all of the larger makers of tread stock and other goods for vulcanizers reporting trade not quite as brisk as in mid-winter a year ago. A predicted early rise in tire prices gives them a ray of hope.

Similarly, manufacturers of rubber supplies for the oil fields in the west and southwest, and with whom trade of late has been very quiet, are much encouraged by the rising market for crude oil, as higher prices for that commodity invariably stimulate drilling. To a considerable degree, however, in drilling, as also in pumping, electric direct-connected apparatus is being employed, with the result that expected orders for both rubber and leather transmission belting are not being received.

The continued fine weather has been a boon to many makers of general mechanical rubber goods, especially such as are used in the building trades, which have been enjoying an unusually brisk season. Sales of garden hose for immediate and early spring delivery have been very large, much of it being produced on the Pacific Coast, although eastern manufacturers' representatives claim that their gross business is much better than a year ago; in other words, that they are more than holding their own despite long freight and other handicaps.

Balloon tires are "looking up" quite notably on the Coast, the chief complaint about them coming from branch agents of midwest and eastern concerns making them, and that being that they cannot get enough of the tires to meet the demand. It is said that an effort will soon be made to try them on light-weight trucks, which, if the experiment is successful, will open up a very large market for them. A reviving interest in radio telephony accounts for a much better demand for parts of hard rubber. Sales for the winter in rubber footwear are reported as very satisfactory.

Los Angeles

January mid-month production at the Goodyear Tire & Rubber Co. factory averaged 4,200 casings and 4,600 tubes daily. J. B. Winstanley, who had been manager of the truck tire department maintained here by the parent Goodyear company of Akron, has been appointed manager of the Denver branch, succeeding M. D. Montgomery, who met death in a recent train wreck. J. X. Kennelly, who for four years had been manager of advertising and sales promotion, has become Los Angeles manager of the Blum Advertising Agency of San Francisco, and John A. Shea, who had assisted Mr. Kennelly, has taken the latter's place at Goodyear's.

The Goodyear Textile Mills, Los Angeles, have taken for cord tire material the season's crop of Pima long staple cotton grown by the Southwest Cotton Co., a Goodyear subsidiary, on 7,000 acres of Marinette, Litchfield, and Goodyear in the Salt River Valley, Arizona.

Elmer Firestone, brother of Harvey Firestone, and who manages the Los Angeles branch of the Firestone company, has returned from a visit to his brother in Akron. The branch reports the best season it has ever had and, though all departments are busy, that devoted to solid tires has been hard pressed with orders.

W. J. Voit, vice president and sales manager of the Eno Rubber Corporation, 1026-1032 S. Los Angeles street, has gone into another line of business, and R. M. Alcock is now vice president, with President Roy Musser in charge of sales. Mr. Musser was in San Francisco recently and effected several large transactions for the Eno concern.

The Long-Turney Corporation, which within the past year took over and infused new life into a rubber plant at 1920 E. Vernon avenue, is developing a new type of solid tire, which it will exploit extensively soon. The concern is having a strong run on retread stock, plumbers' supplies and general mechanicals. It has quit making radio supplies, finding other lines more profitable.

The Angelus Heel & Rubber Co., 1417 N. Main street, conducted by W. E. McCarty and E. T. Mihm, reports business as very good. The concern has a good-sized well-equipped shop and makes not only heels but a large variety of standard mechanical rubber goods.

The Mechanical Rubber Co., making heels with an up-to-date equipment, as well as numerous other rubber articles chiefly for the building trades, has added to its mechanical outfit to meet increasing business. T. Krebs Hill is in charge.

A considerable business in rubber automobile accessories has been built up by the Cushion Pedal Co., 287 San Fernando Road, and of which Charles R. Prentiss is the head. Although a practical rubber man, Mr. Prentiss has not yet set up an establishment for the making of the goods in which he specializes, preferring to have them manufactured by one of the leading rubber mills in Los Angeles.

In the interests of his company L. H. Sweet, plant superintendent of the Reilly Rubber Co., 2432-34 East 56th street, Los Angeles, California, has been recently making a business trip to Akron and Chicago. The Reilly organization is now installing new plant equipment, and making plans to materially increase production during the present year. Not only will the factory output of inner tubes be enlarged, but two or three new articles will be added to the company's manufacturing line. J. R. Reilly is president.

San Francisco

The Pioneer Rubber Mills, the Bowers concern of years ago, has developed into one of the foremost manufacturing plants on the Coast. Every few months sees a new building added to the extensive works at Pittsburg, Contra Costa county; and within the past month the company moved its San Francisco offices from the modest quarters long occupied at 68 Sacramento street to the company's own new six-story building at 353 Sacramento street. The company prides itself on having unexcelled executive and storage facilities, and attributes its success to confining itself to the manufacture of a few staples and emphasizing quality of product as well as fair prices. The Pioneer concern has just executed and delivered to Los Angeles what is said to be the largest single order of its kind ever turned out, namely, 55,000 feet of fire hose, of which 50,000 was in 2½-inch and 5,000 in 1½-inch sizes, all cotton-jacketed.

Revival in mining generally has brought with it a strong demand for conveyor and transmission beltings. A good share of such business is going to the American Rubber Manufacturing Co., Park avenue and Watt street, Oakland, according to Mr. Graves, southern representative. N. S. Dodge is president, and to him is attributed much of the success which the concern has attained.

The Rubber Trade in Europe

Great Britain

BROADLY speaking, British business is improving, but recovery from the recent depression is still very gradual, chiefly on account of the nervous, unsettled condition of continental trade. Political leaders insist that the nation's salvation depends upon the adoption of a protective tariff, and there is undoubtedly a much stronger sentiment than ever in favor of it as a stimulus to industry, as a check to the flooding of the home market with low-priced foreign goods, and a measure for relieving unemployment, which latter has not abated much of late. Rubber manufacturers are being told that their industry would benefit more than many others were such restriction put into effect, but the leading concerns do not appear to have committed themselves toward making any such radical change in the nation's time-honored commercial policy.

However, in spite of the unfortunate conditions prevailing during recent months, the rubber industry enters the new year with many reasons for encouragement. For one thing, the year 1923, notwithstanding its shortcomings, represented a better state of affairs in the rubber trade, generally speaking, than the three which preceded it. Evidence enough is shown by the improved balance sheets of companies producing both raw and manufactured rubber goods. The restriction scheme while it has greatly aided the producers was, in its initial stages, strongly opposed by the manufacturers, many of whom, however, are now changing their opinions somewhat. If the price of crude material is stabilized at about the present figure, as some consider advisable, it should be remunerative to all concerned. Another "change of heart" shown by the manufacturers is evidenced by their better spirit of cooperation, a spirit which should cause improvement of conditions in all sections of the industry. On the whole, the rubber industry should be able to face the year 1924 with considerable optimism and a determination to aid in bringing about certain needed changes.

Institution of the Rubber Industry

At the meeting of the Institution of the Rubber Industry held at the Engineers' Club, London, on December 17, 1923, a paper read by Colonel Sealy Clarke, chairman of the British Rubber Tyre Manufacturers' Association, attracted much attention and caused considerable discussion.

Colonel Clarke took as his subject, "The Present Position of the British Tyre Industry," dividing his paper into four sections—Before the War, During the War, After the War, and the Remedies. He stressed the vital part played by England's tire industry when, during the war and under circumstances of extreme difficulty, the British tire manufacturers supplied not only the requirements of the British Army but also largely assisted in supplying those of the Allies.

Then followed the influx into England of foreign casings, a proceeding instituted while the British industry was concentrating on the filling of war orders. With the British tire market flooded through America's over-production, European manufacturers—particularly French and Italian, although during the last twelve months German producers have also joined them—redoubled their efforts to capture in their turn some of this trade. The result has been that the British market, failing to react to improved trading conditions, has steadily gone from bad to worse. According to Colonel Clarke, the last straw was the recent price reduction announced by the Michelin organization, which with factories in both France and Italy is able to take full advantage of the recent further depreciation of the currencies of those two countries. This reduction has been made in the face of the advance in crude rubber prices as well as cord fabrics and other materials. The widespread unemployment in England which in all industries has affected, according to some authorities, approximately two million people, has been seriously felt in the tire industry, where at least fifty per cent of the rubber employes have been thrown out of work. Naturally this represents one of the gravest features of the situation. Many manufacturers are said to be carrying on operations at only a fourth or a fifth of their output capacity, while no tire company has paid a dividend for three years.

And the remedy? In the opinion of Colonel Clarke, there can be little improvement, for he is skeptical regarding the Safeguarding of Industries Act, unless public opinion in the matter of free trade changes radically. "We have only the old thought," he says, "or rather the old thoughtlessness. We are in the presence of a set of circumstances which must be met and conquered, or they may conquer us. We used to import largely and freely the things we did not make (and incidentally we taxed them), because we were rich with the many things we could make and export, and free trade, or rather, free imports, ceased to be a benefit and became a creed or article of faith as soon as other nations had learned to make the things of which we formerly had a monopoly. It is a curious fact that we are the only country on earth today (the principality of San Marino excepted) which continues the system of free imports. Are we right and all the others wrong? If so, then the wrong has produced wealth and employment and the right is steadily sinking."

The address made a deep impression upon Colonel Clarke's hearers. A vote of thanks was proposed to him, and another to Eric Miller, vice chairman of the Rubber Growers' Association, for presiding over the meeting.

On the evening of January 7 a meeting of the Institution of Rubber Industry was held at the Engineers' Club, London, B. D. Porritt presiding. A paper was read by Dr. S. S. Pickles on "Consistency of Rubber and Rubber Compounds."

Further Applications of Peachey Process

Applications of the Peachey process have been recently extended to manufactures of compounded leather; another important line represents its use in the production of floor coverings; while a third application of the process was in the proofing of goods. Negotiations are also under way for the manufacture of hats and coats. The vulcanization of raw rubber articles is being carried out by the Plantation Rubber Manufacturing Co., and "Cold Process Rubberware, Limited," has been recently formed for the manufacture of molded goods.

Dunlop Rubber Co.'s Favorable Report

In contrast to the accounts of unfavorable conditions in general facing British tire manufacturers is the encouraging report lately rendered by the Dunlop Rubber Co. Part of the statement regarding the company's progress in recent months is as follows:

"In the report for December, 1922, the balance sheet for the ten months ended June 30 showed a net profit of £588,267. Since then progress has been continuous and most gratifying. The balance sheet for the nine months ended March 31, 1923, also showed a profit of £600,000."

The report further states that the plantation company, the French plant, and the American works at Buffalo, New York, are all in a satisfactory condition, and showing profits. The American plant is especially mentioned as increasing its operations, while sales and sales prospects are said to be good and increasing daily. The factory in Germany represents the smallest of the Dunlop plants, and the least satisfactory as to general conditions, although should the political state of affairs in that country improve, this concern also might participate in the general improvement.

Sir George Beharrell, who joined the Dunlop forces about a year ago, is now included in the company's directorate, and has also been appointed a managing director with Mr. Bergin. George du Cros as general manager is now performing no executive duties, while following recent investigations, writs have been issued by the company against the president of the organization, Sir Arthur du Cros, and also against some of the organization's past and present directors. These writs have reference to the validity of certain agreements.

Pneumatic Upholstery for Motor Vehicles

A line of goods which is said to be giving great satisfaction is represented by the pneumatic cushions now being manufactured by David Moseley & Sons, Limited (Chapelfield Works, Ardwick, Manchester). The first of these "Float-on-Air" cushions were especially made for motor cycle saddles, their use now having been extended to requirements for seats and backs in passenger cars and delivery vans. The system on which the Float-on-Air cushions are constructed consists of a coiled rubber tube laid in a way which gives special advantages, and the new product differs from the old-fashioned air bag cushion in that the pressure is taken by a series of coiled tubes which do not allow the two walls of the cushion to meet.

Another New Paving Process

Under the name of "Molem's Way" a new system of rubber paving for roadways was exhibited recently at the Roads and Transport Exhibition, by John Molem & Co., Ebury Bridge-road, London, S. W. 1. The method adopted consists in molding rubber pads onto concrete blocks made of a special mixture. The blocks measure 9 inches in length by 4½ in depth. The surfaces of the rubber pads are embossed to prevent skidding, and are ½-inch thick. They are provided on the under surface with lugs which in turn have non-rusting wires run through them. The process consists of placing the rubber pads in the molds, bottom uppermost, the liquid concrete then being poured around them. The blocks are allowed 90 days to set.

Extension of Kaye's Rubber Latex Process

According to reports recently made in connection with Kaye's rubber latex process the company now owns a comprehensive number of patents in a wide range of countries, while experimental work has been carried on by Mr. Kaye with a view to testing certain extended developments of the process. The directors of the organization are much encouraged by the results already achieved.

Competition Arranged by International Exhibition

All those who are intending submitting papers to be read at the Rubber Congress of the Sixth International Exhibition of Rubber and Other Tropical Products, to be held in Brussels, Belgium, from April 1 to 16, 1924, have been asked to prepare résumés of their papers. The résumé should consist of about 500 words. The latest date at which papers can be received will be February 28, 1924.

Rubber Technology Courses Popular

Growing steadily in popularity are the courses in rubber technology under the direction of Dr. Philip Schidrowitz at the Northern Polytechnic Institute, Holloway, London, N. 7. Very thorough practical and scientific instruction is given to senior and junior day classes, and to an evening class twice a week with an elementary and an advanced course. Graduates are said to be in increasing demand among all classes of rubber manufacturers and dealers.

Sixth International Rubber Exhibition

The Sixth International Exhibition of Rubber, Other Tropical Products and Allied Industries, will be held at Brussels, Belgium, on April 1-16, 1924. Exhibits will embrace manufactured rubber articles, reclaimed rubber, compounding ingredients, raw tropical and manufactured products, new inventions and processes.

The Rubber Growers' Association has offered awards for the best grades of plantation rubber, and for the best exhibit of articles made of plantation rubber or latex. H. Greville Montgomery, 43 Essex street, Strand, London, W. C. 2 is director of the exhibition.

British Notes

Among the tire and allied firms which will take part in the British Empire Exhibition to be held at Wembley this year are the Avon India-Rubber Co., Limited; W. & A. Bates, Limited; Elephant Chemical Co., Limited; Jackson's Impervo Sales, Limited; Palmer Tyre, Limited; Patchquicks Patents, Limited; S. T. Shrewsbury; Challiner Tyre Co., Limited; and Stepney Tyres, Limited. It is believed that the names of other tire organizations will be entered before the opening of the exhibition which will take place in April.

The I. T. S. Rubber Co., Limited, 42 Great Russell street, London, W. C. 1, has recently issued a statement and a special warning that the company will take proceedings against anyone manufacturing, selling or stocking any Concave-Convex rubber heels which are infringements on I. T. S. patents Nos. 6203.14 and 100,731. The leniency shown in the past to infringers will no longer be continued.

Myers (London), Limited, has been recently formed as a private company in order to carry on the business of manufacturing, importing and exporting articles made from a composition consisting of casein, celluloid, vulcanite, and similar substances. Julius Myers is named as permanent director.

The Midland Rubber Goods Manufacturing Co., Limited, Ryland street, Birmingham, was recently registered as a private company in order to carry on the business formerly maintained by the Midland Rubber Co., Limited. The new organization will continue the manufacture of goods made wholly or in part of india rubber, gutta percha, and similar elastic substances.

Austria

Arctics of American manufacture are reported to have been selling well in Austria, particularly the two-buckle arctics from two different firms which sell at $2.60 and $3.00 per pair, respectively. The Swedish companies Tretorn and Helsingborgs are the principal competitors where high-grade arctics are concerned. Their products, with one buckle, sell at $3.50 to $4.00 per pair. The North British Rubber Co. and the Wimpassing factory in Austria offer goods of another quality, the one-buckle arctics of the latter firm selling at $2.00 per pair. The above prices are all at wholesale, delivered in Vienna, all charges and duties paid.

Germany

Just at present the Rentenmark offers the only ray of hope. It is not yet written down as a failure, consequently we dare to build on it to a certain extent. And that is a good thing, for conditions are gloomy enough whichever way one may look at them.

The business man notes with growing consternation the tendency to save and do without. For many people, many articles of rubber, hitherto almost daily necessities, have become luxuries. Jar-rings and gas tubes are among the articles of which local sales have fallen. The high prices for raincoats have put these goods beyond the reach of most people and sales are correspondingly less. Hospitals and sanatoria have in many cases been forced to close down in part if not altogether, so that demand for surgical goods has shrunk.

Rubber soles and heels are being used more and more, but unfortunately this is causing a good deal of unfair competition, for a large number of small factories have recently sprung up which produce an inferior article and sell this so cheaply that the big firms, looking to quality, can absolutely not compete with them. It is feared that the poor quality of the cheap goods will in time

turn the consumer, who rarely discriminates carefully, against all rubber heels and soles and so spoil the outlook for this line of rubber goods.

Payments by Courier

The rapid fall of the mark has necessitated the use of couriers to make payments. Never and nowhere was the saying "Time is Money" so true as it is today in Germany. A man must hurry to pay his debts within the appointed time limit, for a day or even an hour may mean to him the loss of billions or trillions of marks. Consequently, at present, almost every firm of importance has couriers traveling over the length and breadth of the country, with no other duty than to pay bills.

New Rubber Goods

The firm of G. Schneiders, Kohlscheid, has patented a new feeding-bottle-and-nipple-holder, brand *Hedi*. This consists of a cap fitting over the nipple and fine chains depending therefrom, which chains are in turn connected with a rubber band going round the lower half and bottom of the bottle. The bottle may also be prevented from falling out of crib or carriage by means of two cords with appropriate clamps at the end. The different parts are detachable and a rearrangement of the chains permits the bottle to be hung about the neck of an older child.

Exports of Rubber Goods

Provisional statistics show that in spite of adverse conditions, Germany exported more rubber goods during 1923 than in 1922, the figures being 151,300 quintals against 139,100 quintals. The 1923 totals are but little below those of 1913, which were 160,500 quintals.

Sweden

The greater part of Sweden's imports of rubber goods consists of tires and tubes which amounted to 1,315,367 kilos in 1922. This is over 500 per cent more than the total for 1913, when 253,117 kilos were imported. In that year Great Britain furnished 100,152 kilos; Germany, 47,592; United States, 46,255; Russia, 25,039; Denmark, 18,228, and France, 11,850. But in 1922 America ranked first with 551,064 kilos, Great Britain next with 480,266 kilos, followed by Denmark with 101,693; France, 47,830, and Germany, 44,248 kilos.

Dealers estimate that about 100,000 automobile tires were sold in Sweden in 1922. As particularly large imports were made toward the end of that year to escape a tax which came into force on January 1, 1923, it is not considered probable that 1923 sales will be as high.

Imports of rubber footwear into Sweden fell from 114,002 kilos in 1913 to 105,527 kilos in 1922; this is probably due to the increasing importance of the manufacture of these goods in Sweden itself. However, the volume of the import trade is considered satisfactory and America is getting a larger share of the business.

INTERNATIONAL ASSOCIATION FOR RUBBER CULTIVATION IN NETHERLANDS INDIES

Review of the Industry

At a general meeting of the International Association for Rubber Cultivation in the Netherlands East Indies, held on December 6, 1923, exactly ten years after its foundation, Dr. A. G. N. Swart, the president, delivered an address in which he reviewed the activities of the Association during the first decade of its existence.

At the end of December, 1922, the Association comprised 250 members, 190 companies and 60 individuals, but chiefly on account of the fusion of companies and the resignation of certain concerns producing tea only, the membership has now fallen to 244 members, 185 companies and 59 individuals. The rubber area represented is 241,200 hectares, or about 82 per cent of the rubber area of companies in the Netherlands Indies, if government plantations and the numbers of estates, chiefly in East Java, where rubber has been planted between other crops, are not counted.

In the ten years of its existence the Association has seen the rubber area in the Dutch colonies grow from 196,265 hectares in 1913, to 372,595 hectares at the end of 1922, of which 234,573 hectares were in production. The areas of the numerous native plantations are not included in these figures; it is estimated, however, that these amount to some 50,000 hectares, which would make the total rubber area almost 425,000 hectares.

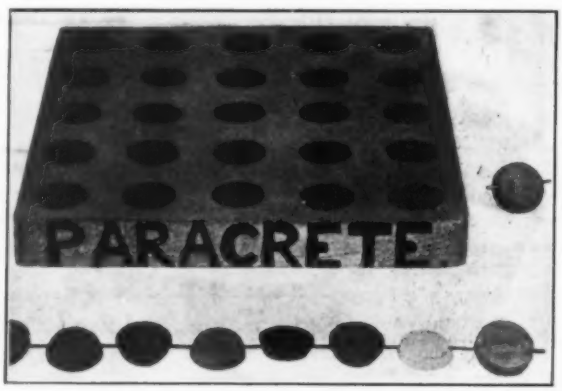
The invested capital, amounting in 1913 to 253,000,000 guilders, is now around 480,000,000 guilders. The greater part of this increase falls to the account of the Netherlands, for while British capital rose from 147,500,000 to about 190,000,000 guilders, Franco-Belgian from 40,000,000 to 53,000,000 guilders, and American from 17,250,000 to 27,500,000 guilders, the share of the Dutch jumped from 47,500,000 to no less than 170,000,000 guilders!

Considering the future consumption of rubber, the president quoted the opinion of an important American manufacturer who computed the rubber consumption in America in 1923 at around 300,000 tons, foresaw a drop in 1924, but a steady increase thereafter causing the total to rise to some 600,000 tons in five years!

Predictions like the above were not devoid of significance, thought Dr. Swart, as they indicated a frame of mind among big consumers that might lead to considerable extension of the rubber area.

"PARACRETE" RUBBER PAVING

Among the various paving projects which have been recently under consideration is one which uses a combination of rubber and concrete, while the pavement when laid is said to have somewhat the effect of mosaic. The scheme represents the work of Morland M. Dessau, who was the first to lay a rubber roadway



Concrete and Rubber Paving Inserts—Wire Attached Rubber Disks

in a public metropolitan thoroughfare, such a plan having been carried out in London, England, in 1913.

"Paracrete" is made by pouring concrete around a foundation formed of rubber disks with tapering undersides. These studs may also be entrapped in wire and are laid face downward in troughs, while the concrete is then poured over. The wire ends provide reenforcement, and the whole thus becomes a homogeneous mass. For steps, entrances to public and private buildings, etc., this new form of paving is said to prove very satisfactory.

A PERUVIAN RUBBER FACTORY

The Fabrica de Articulos de Jebe, operated by C. Tominga in Lima, is the only rubber factory in Peru. This factory produces chiefly heels, soles, belts, rubber balls, sandals, straps and various kinds of packing. It is claimed for these goods that they compare favorably in all respects with similar imported articles.

The Rubber Trade in the Far East

By Our Regular Correspondent

Malaya

THE new rubber restriction regulations, designed to stop up existing leaks and make restriction more of a fact than a farce, were enforced November 1, 1923.

The new system resembles that adopted by Ceylon. Under it, exporters of rubber—estates, estate agents, rubber dealers—must apply to the proper authority for registration and will then be permitted to have a credit account for the amount of rubber they are allowed to export, which is duly noted in the books of the customs station through which they have applied to export. Shipments will be covered by requisitions made out on forms from export requisition books, which will be supplied to registered exporters. No rubber will be allowed to pass unless sent by a registered exporter, and no further consignments by such exporter will be passed once his total exports reach the amount of his credit.

Holders of certificates of standard production who wish to sell to exporting dealers instead of themselves making shipments, will have accounts opened to their credit in the books of the Rubber Exports office, but will have to apply to this office for the amount of any sale to be debited against them and credited to the exporting dealer.

Owners of less than two acres are not affected by the new regulations.

Restriction and the Dutch

Gloom prevails, particularly in the pages of the *Straits Times*. Restriction improved prices and appreciative planters have rewarded the efforts of Mr. Still, editor of the above paper, with the sum of $10,500, but stocks in London are increasing, prices will not go up to 1*s* 6*d*., restriction is about 50 per cent sham, and the Dutch are producing for all they are worth. If this keeps up much longer a repetition of conditions of 1920-21 is foreseen.

The obvious thing to do to avoid disaster is to make restriction more drastic and to persuade the Dutch to stop attempts at evening up any decreases in production that British restriction may effect.

The *Straits Times* outlines the following policy for the rubber industry here: Abolish the Duncan scale, except for estates unable to produce actual figures, and check all standard production certificates issued to old producers. Make alternate-day tapping on a sound basis the rule; increase restriction to fifty per cent and modify by one month's notice instead of three months as at present; and last, but not least, reopen negotiations with the Dutch, offering them easy terms.

That it is necessary to get Dutch cooperation to insure the success of restriction is evident from 1923 figures. During that year Malayan outputs were about 180,000 tons against 212,000 tons in 1922; Ceylon exports were about 39,000 tons against 46,694 tons the year before, making the reduction in 1923 from both places around 39,000 tons (Malaya 32,000 tons and Ceylon about 7,000 tons). But at the same time the Dutch shipped 30,000 tons more than in 1922, so that the decrease in exports from the Orient was only 9,000 tons.

Although the *Straits Times* was about the strongest advocate of restriction for Malaya alone, it is now embarking on a campaign to enlist Dutch cooperation, with its traditional tact. It gently chides the Dutch for their policy and urges them to reconsider their attitude. During the year ended October 31, 1923, they made some $70,000,000 more on rubber than the year before, but they are not likely to make as much this year if they keep on frustrating British efforts. Moreover, patiently explains the paper, Britishers would have to restrict to a ruinous extent to make good their action, and so circumstances might arise forcing it to tell its followers to suspend restriction, knock the Dutch Indies off the field, then if necessary resume restriction again.

After it has delivered itself of this manifesto, the *Straits Times* feels much better and amiably declares that if the Dutch decide to cooperate, they will be let off easily, and all they would have to do would be to agree not to export more than 100,000 tons during the ensuing year. Prices might then very well go up to 1*s*. 6*d*. per pound, whereas if the British planters decided that it no longer paid them to restrict and resorted to cut-throat competition, prices would drop to 4½*d*. per pound, which would not be quite so profitable for Dutch or British.

Cut-throat competition would be the last resort, for while most people are confident that Malaya would be the winner, they also feel that victory would be as disastrous as defeat.

Of course much is made of the fact that Malayan plantations have been benefited by the compulsory resting of trees due to restriction, while Dutch trees are supposed to have deteriorated proportionately because they have been over-tapped. However, on the one side, one hears a good deal of Malayan planters who have to tap daily and twice daily to make up their allowance, so that if this is true, the improvement in Malayan estates cannot be very general, while on the other hand the Dutch claim they have not been overproducing, that the surplus rubber is chiefly native rubber; and if the Dutch claim is true, their estates are in no worse condition than the Malayan. Also, if Dutch estates have made money during the past year and have been able to lay up reserves of capital, then so have Malayan estates, if statistics and company reports mean anything.

Meanwhile, efforts are being made in various quarters to bring the Dutch into line with Malaya. At a recent extraordinary general meeting of the Negri Sembilan Planters' Association, it was resolved that all district associations should ask the Planters' Association of Malaya to take immediate steps to send over a delegation to the Dutch Planters' Association in Java and Sumatra to induce them to cooperate with Malaya and Ceylon. Also, that the Planters' Association of Malaya should cable to the Rubber Growers' Association asking them again to open up the matter with the Dutch authorities, as without Dutch cooperation the rubber industry would not be stabilized for a considerable time.

Young Producers

The case of the young producers is receiving considerable attention at present. As has been explained, owners of young plantations claim that the Duncan scale, which applies to them, is unfair in the extreme. Investigation has shown that according to this scale many young estates are really restricting up to 70 and 80 per cent, while older producers have succeeded in getting allowances they often find it difficult to cover without over-tapping and buying up rubber. Naturally this inequality has roused the young producers, who want the Duncan scale revised in their favor. Such action, without the balancing effect of cuts in allowances of old estates, would be ruinous to restriction. Therefore, it has been suggested in the Federal Council that the assessments on which restriction is based should be overhauled. It looks as though the agitation of young producers will succeed in bringing about a total revision of the scale of production all around.

New Inventions

Privileges under the Inventions Ordinance have been granted to W. M. Blake, of the Villa Alba, Tanjong Rhu, Singapore, and Anne Cornelis Offenberg, of the Hotel Van Wijk, Singapore, for the manufacture of resilient rubber brushes; to M. S. Smith, of

Kinrara Estate, Petaling, F. M. S., for rubber-cushioned ships fender, and to A. Jeffrey, planter, and B. Wilkinson, engineer, both of Sitiawan, for a process for the conversion of rubber latex of any degree of specific gravity into non-oxidizable rubber composition tile, mats, wall, floor and roof covering and products of a similar nature.

Ceylon

The total exports of Ceylon-produced rubber for the first twelve months of restriction, from November 1, 1922, to October 31, 1923, were as follows:

	Restricted Rubber Tons	Stocks Tons	Total Tons
November, 1922	2	3,704	3,706
December	663	3,360	4,023
January, 1923	2,953	1,683	4,636
February	2,777	655	3,432
March	3,369	486	3,855
April	2,273	251	2,524
May	2,654	68	2,722
June	2,662	103	2,765
July	2,652	24	2,676
August	2,664	5	2,669
September	2,513	16	2,529
October	2,304	5	2,309
Total for twelve months			37,846

In 1922, exports were 46,694; in 1921, 39,341; in 1920, 39,532; and in 1919, 46,081 tons.

Imported rubber re-exported from Ceylon from November 1, 1922, to October 31, 1923, totaled 2,289 tons as against 2,282 tons for the year 1922. The amount of rubber latex exported during the period under review was 6,625 2/3 gallons.

Netherlands East Indies

News has just been received here that the Planters' Association of Malaya has urged the British Government once more to attempt to get the Dutch to cooperate in restricting rubber. It has not yet been possible to learn what representative persons have to say concerning the renewed efforts of the British in the above, but the result seems hardly doubtful.

As was explained at some length last month, the Dutch Government could hardly enforce restriction, even if the majority of Dutch producers desired it, which is not at all certain. Even those theoretically in favor of restriction hesitate when it comes to putting theory into practice, because they are so convinced of the extraordinary difficulties lying in the way of any such action.

The Dutch insist that they have not worked against restriction by over-tapping and that the considerable increase in Dutch exports is largely due to the enormous flight that native rubber has taken. The following figures are quoted to prove this statement:

Exports from January to September in Tons

			Dutch Colonies	
	Malaya	Ceylon	Estate	Native
1922	158,889	32,656	45,765	[1]25,000
1923	140,690	28,113	50,504	[1]47,000
Increase	.....	.....	4,739	22,000
Decrease	18,199	4,543	.....	.....

[1]Approximate.

On the other hand it has been suggested that complete cessation of tapping for a period of say three months would be more advantageous to the restricting countries than the present system. For if the aim is to reduce the surplus which for the purpose of calculation is here figured at 60,000 tons, and if the monthly production of the restricting countries were 20,000 tons, the entire surplus would be worked off in three months and restricters would then be free to produce what they liked. If the propounder of this scheme means by *restricting countries*, Malaya and Ceylon, the plan certainly would work out beautifully—for the Dutch!

Malang Agricultural Association

Some interesting points were discussed at a recent meeting of the Malang Agricultural Association. Among others, Mr. Blijdenstein lectured on the formation of air-bubbles in sheets. He made a series of tests which led him to conclude that to prevent this defect sheets should not be too thick and that the latex should be rapidly prepared and the sheets dried as quickly as possible. Dr. Ultee endorsed these statements, adding that the use of water containing lime did not influence the formation of bubbles.

Dr. Bally next discussed periodical tapping. This is much more in vogue in Malaya and Sumatra than in Java, where Dr. Bally feared the more pronounced dry season would make the system less successful than in the first-named countries. One estate taps four months and rests four months, the reason for this being that the disadvantages connected with renewing tapping operations after a period of rest are confronted three times a year instead of twelve times when tapping every other month. However, there are many objections to over-long periods of rest. Dr. De Vries recently showed that while alternate monthly tapping does not disturb the uniformity of the product to any marked degree, rest periods of six weeks or two months are sometimes followed by abnormalities, and still longer rest periods cause serious modifications in the rubber so that it takes two to three weeks for the rubber to become normal again.

Even after moderate periods of rest, the first few tappings give yellow latex which also has a tendency to form lumps. But after protracted rest periods, not only are these unpleasantnesses encountered, but the rubber is found to have an abnormally slow rate of cure. For this reason, and because it is feared that people may begin to complain of a decline in the uniformity of Java rubber, rest periods exceeding 6 weeks are not advised.

Statistical Notes

During the period January—August, 1923, Belawan, Deli, exported 4,616 tons of latex. At the same time Ceylon shipped 11,406 gallons and Malaya 72,441 gallons.

Java and Madura imported 25,966 automobile tires in September, 1923, and 182,178 tires during the nine months ended September, 1923. For the corresponding periods of 1922 the figures were 14,311 and 177,797, respectively. Bicycle tires numbered 58,876 for September, 1923, against 34,322 tires in September, 1922, and 339,636 tires for the first nine months of 1923 against 280,351 tires in the same period of 1922.

Forward Contracts

J. N. Burger announces that forward contracts for rubber out of 1924 crops were made by the following concerns of which he is director:

Sumatra Rubber Cultuur Mij. Serbadjadi, Lampong Sumatra Rubber Mij., Silan Sumatra Rubber Mij., Rubber Mij. Ambalatoe, and Wai Sumatra Rubber Mij. The total amount of rubber thus sold is 645,000 half kilos, standard quality at prices of 75 guilder cents per half kilo and 1*s.* 2½*d.* to 1*s.* 2¾*d.* per pound; part of this rubber is to be sent free on board Oriental harbor and the rest c. i. f. New York.

AUSTRALIA'S INDIGENOUS RUBBER TREES

Indigenous to the soil of Queensland, Australia, are several varieties of rubber and balata-producing trees that belong to the following families: *Sapotaceæ, Apocynaceæ, Euphorbiaceæ,* and *Urticaceæ.* Of the *Sapotaceæ* there are some eleven species, the sticky milky juice they yield being a possible substitute for chicle. The three varieties of the *Apocynaceæ* family, somewhat resembling gutta percha, grow abundantly in North Queensland. Reports have not been very favorable regarding the *Urticaceæ* species, although they produce a caoutchouc containing milky juice. They represent the native figs, of which there are about fifty varieties in Queensland.

Some interesting investigations, however, have been made with the *Euphorbiaceæ,* as two of its three varieties have some of the properties of india rubber and gutta percha. The milky juice of these trees, particularly that of the "milky mangrove," is very poisonous, the natives believing that it will blister the skin, or cause blindness. The product of one of these trees, the *Excæcaria dallachyara,* contains 19.61 per cent of caoutchouc soluble in naphtha.—*India Rubber Journal.*

Recent Patents Relating to Rubber

The United States

Issued* December 18, 1923

1,477,564 Cushion tire. E. G. Hulse, assignor to Kelly-Springfield Tire Co., both of Cumberland, Maryland.

1,477,565 Athletic supporter with elastic sections. W. F. Jenkins, New Rochelle, N. Y., assignor to Bauer & Black, Chicago, Illinois.

1,477,788 Rain and storm coat. F. E. Toniutti, Forest Park, Illinois.

1,477,856 Waterproof sanitary garment. H. C. Toeppen, Wilmette, Illinois, assignor to The Sanitary Rubber Novelty Co., Chicago, Illinois.

1,477,886 Rubber-and-jute belt. W. K. Lewis, Newton, Massachusetts, assignor to The Goodyear Tire & Rubber Co., Akron, Ohio.

1,478,002 Tire valve. O. W. Eastburn, Jr., Kennett Square, Pennsylvania, assignor to Evan B. Sharpless, Avondale, Pennsylvania.

1,478,040 Woven flexible packing. J. G. Leonard, Maywood, Illinois.

1,478,055 Dust cap for tire valves. E. H. Parker, Somerville, assignor by direct and mesne assignments to Pushpull Valve Cap Co., Boston, both in Massachusetts.

1,478,083 Wire-wound hose. R. B. Whitmarsh, Los Angeles, California, assignor to The B. F. Goodrich Co., New York, N. Y.

1,478,095 Sheet rubber flesh reducing garment. Lillian M. Bender, San Francisco, California.

1,478,156 Solid tread pneumatic tire. B. J. Whitcomb, St. Louis, Missouri.

1,478,177 Rubber washboard. M. M. Dessau, London, England.

1,478,232 Corset with elastic sections. D. Kops, assignor to Kops Bros., Inc., both of New York, N. Y.

1,478,233 Corset with elastic sections. D. Kops, assignor to Kops Bros., Inc., both of New York, N. Y.

1,478,239 Swimming belt. J. Marengo and A. Marengo, both of Stockton, California.

1,478,245 Dust cap for pneumatic tire valve. A. F. Nelson, Hollidaysburg, Pennsylvania.

1,478,253 Ankle supporter. A. Quenzer, Brooklyn, New York.

1,478,321 Wheel rim and tire. J. Berkel, New York, N. Y.

1,478,332 Fountain pen. L. G. Garder and N. C. Enger, both of Oshkosh, Wisconsin.

1,478,349 Acid-proof bifurcated apron. R. F. Oberndorfer, Milwaukee, assignor to Oberndorfer Co., both in Wisconsin.

Issued* December 25, 1923

1,478,388 Soft rubber massage instrument. D. Gray, New York, N. Y.

1,478,493 Dual pneumatic wheel. F. H. Walkley, assignor to The Dayton Steel Foundry Co., both of Dayton, Ohio.

1,478,506 Combined tire valve and pressure gage. O. F. R. Bromberg, Los Angeles, California.

1,478,557 Rubber hospital pad or cushion. M. Dorrance, Smithfield, Ohio.

1,478,755 Toy balloon. J. F. Mulholland, Columbus, Ohio.

1,478,773 Elastic shoulder strap retainer. C. W. Stocker, Lansdowne, Pennsylvania.

1,478,788 Tire and method of making. E. H. Jones, London, England.

1,478,833 Tire casing. R. I. O'Brien, New York, N. Y., assignor to Morgan & Wright, a corporation of Michigan.

1,478,907 Dress shield. S. H. Ogden, Cape May C. H., New Jersey, assignor of one-half to F. H. Brown, Germantown, Pennsylvania.

1,478,959 Inflatable swimming device. W. B. Hobert, Jr., Jackson, Mississippi.

1,478,962 Sanitary apron with inset of sheet rubber. M. S. Hulley, Woodhaven, New York.

Issued* January 1, 1924

1,479,010 Valve pad for pneumatic tires. N. F. Rice, Chicago, Illinois.

1,479,068 Inner tube for tires. D. J. Hammer, assignor of one-half to J. H. Flinn and J. McEwan, all of Pittsburgh, Pennsylvania.

1,479,111 Emergency tire. J. Slomer, Waukegan, Illinois.

1,479,134 Powder-puff holder. V. Guinzburg, assignor to I. B. Kleinert Rubber Co., both of New York, N. Y.

1,479,135 Powder-puff holder. V. Guinzburg, assignor to I. B. Kleinert Rubber Co., both of New York, N. Y.

1,479,136 Powder-puff holder. V. Guinzburg, assignor to I. B. Kleinert Rubber Co., both of New York, N. Y.

1,479,137 Powder-puff holder. V. Guinzburg, assignor to I. B. Kleinert Rubber Co., both of New York, N. Y.

1,479,150 Garter. G. B. Mellus, Los Angeles, California.

1,479,163 Toy balloon, T. P. Tyrrell, Akron, Ohio.

1,479,402 Armor protection for pneumatic tires. S. J. Soltesz, New York, N. Y.

1,479,411 Armored tire and rim. M. Harloe, Winchester, Virginia.

1,479,471 Rubber washboard. N. D. Lenner, Akron, Ohio.

1,479,477 Universal joint disk of rubberized fabric. N. S. Noble, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

1,479,619 Power driven fan with rubber straps. J. Martinez, Palmdale, California.

1,479,755 Flexible coupling of fabric and rubber. R. J. Stokes, Trenton, assignor to Thermoid Rubber Co., Hamilton Township, both in New Jersey.

Issued* January 8, 1924

1,479,798 Rubber sole. G. Ferguson, Wallaston, Massachusetts, assignor to United States Shoe Machinery Corp., Paterson, New Jersey.

1,480,201 Cushion tire filler. S. L. Everhart, Dowagiac, Michigan.

1,480,252 Inner tube. E. Fetter, Baltimore, Maryland.

1,480,424 Massage apparatus. R. S. Thompson, New York, and C. F. Doscher, White Plains, assignor to The Thompson-Barlow Co., Inc., all of New York.

*Under Rule No. 167 of the United States Patent Office, the issue closes weekly on Thursday, and the patents of that issue bear date as of the fourth Tuesday thereafter.

The United Kingdom

Published December 12, 1923

205,691 Capsule closure employing rubber ring. P. J. Boucher, 8 Nevern square, Kensington, London.

205,692 Combined solid tire and mudguard. N. H. Phillips, 58 Smithwaite street, Wakefield, Yorkshire.

205,752 Rubber surfaced paving and flooring blocks. W. A. Williams and North British Rubber Co., Ltd., Castle Mills, Fountainbridge, Edinburgh.

205,787 Rubber sheath for steering wheels. W. F. Ridge, 90 Rose avenue, Akron, Ohio, U. S. A.

Published December 19, 1923

205,862 Waterproof sponge holder. W. A. S. Robertson, 39 Hamlet Gardens, Ravenscourt Park, London.

205,947 Adjustable elastic for securing women's hats. J. P. Bentley, 15 Effra road, Brixton, London.

205,957 Solid tire. J. S. Mitchell, Station road, Lockerbie, Dumfriesshire.

205,977 Studded tire tread. W. W. Levy, 32 York road, Kings Cross, London.

205,989 Massage device employing rubber ball. E. K. Saville, 77 Gladstone road, Boscombe, Hampshire.

205,992 Rubber-lined powder puff. H. I. Lacy-Hulbert, Edgehill, Warlingham, Surrey.

206,020 Cloth expander with rubber sleeve. W. Mycock, Spring Mill, Whitworth, near Rochdale, Lancashire.

206,061 Rubber covered valve disk. H. H. Broughton, The Dene, Love Lane, Pinner, Middlesex, and R. Boby, Ltd., St. Andrew's Works, Bury St. Edmunds, Suffolk.

The Dominion of Canada

Granted December 18, 1923

236,362 Rubber heel. H. H. Swan, Grand Rapids, L. A. Brown, Alto, both in Michigan, and H. Young, Kansas City, Missouri, all in the U. S. A.

236,394 Pneumatic sole. L. Glanzer, Winkler, Kansas, U. S. A.

236,476 Child's rubber pants. The Kelton Rubber Co., assignee of N. E. Kelk, both of Toronto, Ontario.

Granted December 25, 1923

236,565 Tire. E. B. Killen, London, E. C. 4, England.

Granted January 1, 1924

236,722 Fountain sponge. E. Labelle, Montreal, Quebec.

Granted January 8, 1924

236,810 Wheel of rubber and plies of veneer. H. N. Atwood, Monsoon, Massachusetts, U. S. A.

236,812 Wheel of rubber and plies of veneer. H. N. Atwood, Monsoon, Massachusetts, U. S. A.

236,827 Rubber brush. M. M. Dessau, London, England.

236,867 Cushion tire. L. Tischenback, Paris, France.

236,880 Sponge rubber pipe covering. The Dunlop Tire & Rubber Goods Co., Ltd., assignee of L. V. Dixon, both of Toronto, Ontario.

236,902 Tire adapter. C. H. Will, H. E. Wilcox, and R. D. Wilcox, assignees of one-third interest each, all of Minneapolis, Minnesota, U. S. A.

236,909 Composite laminated structure employing rubber filling. H. N. Atwood, Monsoon, Massachusetts, U. S. A.

236,912 Submarine sound detector comprising water-filled tube with microphones. H. C. Hayes, Annapolis, Maryland, U. S. A.

New Zealand

Published November 1, 1923

49,897 Rubber shoe-tip. A. Levy, 7 Canterbury Mansions, West Hampstead, London, England, and I. T. S. Rubber Co., Ltd., 42 Great Russell street, London, W. C. 2, England.

Chemical Patents will be found on page 307, Machinery and Process Patents on Pages 310-311

Published November 15, 1924

49,663 Resilient wheel and solid rubber tire. C. Newman, 202 King street, Newtown, New South Wales.

50,854 Soft rubber insulating compound. Western Electric Co., Ltd., Connaught House, Aldwych, London W. C., England.

Published November 29, 1923

50,797 Elastic corselet with both side suspender and round garters. B. A. Samways, 66a Boulcott street, Wellington.

Germany

Design Patents Issued, With Date of Issue

857,398 (March 19, 1923). Exchangeable rubber heel. Hermann Conrad and Fritz Wohlfarth, Schillerstrasse 30, Halle a. S.

857,538 (September 24, 1923). Rubber sole. Rudolf Marx, Harenbergstrasse 23, Hannover-Limmer.

857,618 (March 3, 1923). Rubber toy. Gebrüder Feisenberger, Berlin.

857,701 (July 23, 1923). Ball with elastic sides and opening. Hartburger Gummiwaren-Fabrik Phoenix A.-G., Harburg a. Elbe.

857,702 (July 23, 1923). Hollow sponge rubber ball. Harburger Gummiwaren-Fabrik Phoenix A.-G., Harburg a. Elbe.

857,840 (July 3, 1923). Exchangeable rubber heel. Heinrich Merkel, Hofgöhlenau, Post Triedland, Bezirk Breslau.

857,897 (October 2, 1923). Vaginal syringe. Howard Glenn Carter, Detroit, United States; represented by: R. Geissler, Berlin, S. W. 11.

858,056 (September 5, 1923). Waterproof, non-slipping, sanitary bandage. Alban Kibele, Weissenfels a. S.

858,183 (March 23, 1923). Rubber toy. Margot v. d. Heyden, née Jentsch, Helmstedterstrasse 17, Berlin-Wilmersdorf.

858,500 (October 8, 1923). Absorption chamber for examining micro preparations. Continental-Caoutchouc-und Gutta-Percha-Compagnie, Hannover.

858,586 (July 17, 1922). Cover for pneumatic tire. The Dunlop Rubber Co., Limited, London; represented by: Dr. R. Wirth, C. Weihe, Dr. H. Weil, M. M. Wirth, Franfurt-am-Main, and T. R. Koehnhorn and E. Noll.

858,736 (October 12, 1923). Injection syringe. Albert Erbe, Dohnaerstrasse 43, Dresden.

858,737 (October 12, 1923). Catheter. Georg Wolf G. m. b. H., Berlin.

858,750 (October 15, 1923). Rubber coat. Eugen Nitzsche, Boxgraben 36, Aachen.

858,776 (March 31, 1923). Non-skid tire. Continental-Caoutchouc-und Gutta-Percha-Compagnie, Hannover.

858,777 (March 31, 1923). Non-skid tire. Continental-Caoutchouc-und Gutta-Percha-Compagnie, Hannover.

858,779 (July 25, 1923). Inflatable saddle cushion for bicycles and motorcycles. C. Müller, Gemmiwarenfabrik A.-G., Berlin-Weissensee.

858,916 (August 1, 1923). Tire. Georg Himmler, Siegmar bei Chemnitz, and Oswald Schmidt, Richard Wagnerstrasse 20, Chemnitz-Kappel.

859,006 (October 16, 1923). Rupture band. Anton Fronek, Zitenice bei Leitmeritz; represented by: Dr. O. Arendt, Berlin W. 50.

860,004 (September 19, 1923). Insulating substance with vulcanized rubber varnish. Gummiwerk Ernst Kniepert, Löbau i. S.

860,057 (November 1, 1923). Disinfecting syringe. Deutsche Desinfections-bedarf-A., G., Berlin-Weissensee.

Patents Issued with Dates of Issue

387,826 (March 15, 1923). Exchangeable rubber thread patch. Rudolf Metternich, Bad Salzuflen, Lippe.

387,978 (December 19, 1922). Medicinal syringe. Dewitt & Hertz, Berlin.

388,200 (October 20, 1921). Medicinal syringe. Theodor Teichgraeber A.-G., Berlin.

388,189 (March 13, 1923). Rubber cloth for gumming press. Ferdinand Laissle, Göppingen.

388,632 (February 15, 1922). Vaginal syringe. Isaac William Friedman, New York, N. Y., United States; represented by Dr. R. Geissler, Berlin S. W. 11.

Trade Marks

The United States

Two Kinds of Trade Marks Now Being Registered

Under the rules of the United States Patent Office, trade marks registered under the Act of February 20, 1905, are, in general, fanciful and arbitrary marks, while those registered under the Act of March 19, 1920, Section 1 (b), are non-technical, that is, marks consisting of descriptive or geographical matter or mere surnames. To be registered under the latter act, trade marks must have been used for not less than one year. Marks registered under this act are being published for the first time when registered, any opposition taking the form of an application for cancellation.

Granted December 18, 1923, Act of February 20, 1905

177,409 Within a triangular border the word GEBS, and threaded through the letters of this the words GIVES EVERY BODY SERVICE; beneath this the words BEST FOR FIVE and BOOT SHOP—boots, shoes and slippers of leather, rubber, or fabric, and hosiery. Gebs Boot Shop, Pittsburgh, Pennsylvania.

177,534 Representation of a small boy in underwear, and a small dog trying to pull the boy's garter from his hands—dress shields, elastic webbing, and shirred elastic ribbon. A. Stein & Co., Chicago, Illinois.

Granted December 25, 1923, Act of February 20, 1905

177,668 BIGGERS BLT—a chemical compound relating to the treatment, manufacture and use of rubber and rubber products. Rubber Process Corporation, Detroit, Michigan.

177,836 CORK FELTBAK—linings for transmissions and brakes. Advance Automobile Accessories Corp., Chicago, Illinois.

Granted January 1, 1924, Act of February 20, 1905

177,856 Representation of two arms, from the elbow down, with each hand grasping an extension of a triangular figure bearing the monogram CTC, the top stroke of the T extending over the other two letters—pneumatic and solid rubber tires for automobiles and rubber inner tubes. Columbia Tire Corporation, Portland, Oregon.

177,865 A S P—rubber belting. E. C. Atkins & Co., Indianapolis, Indiana.

177,866 ATKO—rubber belting. E. C. Atkins & Co., Indianapolis, Indiana.

177,875 A strip of fabric having a color line longitudinally disposed upon the goods and incorporated in it and comprising a central blue stripe bordered on each side by a stripe of alternating black and yellow—linen fire hose. William & Charles Beck, Inc., Lawrence, Massachusetts.

177,876 The mark consists of a color line longitudinally disposed upon a strip of fabric and incorporated in it and comprising a central blue stripe bordered at each side by a black stripe—linen fire hose. William & Charles Beck, Inc., Lawrence, Massachusetts.

177,879 Representation of a polar bear, and above it the words: A BEAR FOR WEAR—raincoats. Gillette Rubber Co., Eau Claire, Wisconsin.

177,930 DADDY BOY—rubber dolls. The Perfection Rubber Co., Cleveland, Ohio.

177,960 DRI-LITE—raincoats. New York Mackintosh Clothing Co., New York, N. Y.

177,985 DUPLEX—rubber and fabric tires and tubes for vehicles. American Auto Accessories Stores, Wilkes-Barre, Pennsylvania.

Granted January 1, 1924, Act of March 19, 1920, Section 1(b)

178,028 GLOVE-FITTING—corset brassieres, bandeau brassieres, elastic girdles, etc. George C. Batcheller & Co., New York, N. Y.

Granted January 8, 1924, Act of February 20, 1905

178,128 GLOTEX—ornamental fabrics of vulcanized sheet gum rubber of the kind employed in the manufacture of clothing, hats, curtains and draperies. Brandon Mills, Inc., New York, N. Y.

178,219 Representation of a runner, and back of him the word: MARATHON—golf balls and golf stick grips. The Marathon Tire & Rubber Co., Cuyahoga Falls, Ohio.

178,230 Trademark consists of a stripe of white on the outer surface of a section of hose, extending longitudinally thereof—hose made wholly or partly of rubber or rubber composition. Voorhees Rubber Mfg. Co., Jersey City, N. J.

178,265 CHEMICO—Golf balls. Wilfred Hill, trading as The County Golf Co., Birmingham, England.

178,367 "GOS-MER-ETT" within an oval outline—rubberized cloth. Meade Rubber Co., Stoughton, Massachusetts.

Granted January 8, 1924, Act of March 19, 1920, Section 1(b)

178,442 WEDGE TREAD, each word having a wedge-shaped background so arranged that the small ends of the two almost meet, the letters being graduated in size so that the smallest are at the center of the figure—rubber and rubber and fabric tires. The Miller Rubber Co., Akron, Ohio.

178,448 PARAMOUNT—dental, medical and surgical appliances, including hospital rubber goods, hot water bottles, surgeons' gloves, sheeting, operating pads, rubber tubing for various purposes, invalid rings, etc. J. J. Kleiner & Co., New York, N. Y.

The Dominion of Canada

Registered

34,657 Label having at its center a caricature of a boy having his ear pulled; above are the words: SURE GRIP, and below, the words: STIX O QUICK—rubber patches. Verner Tackwell Smith, Guelph, Ontario.

34,709 DURATEX—substance composed wholly or partly of rubber or in which rubber or rubber substitutes are component parts, such substance to be used in sheet form or molded in various shapes to be used for various commercial purposes, such as soles and heels for both rubber and leather footwear, flooring and paving in either sheet, block or tile form, as well as rubber packing and kindred lines. Gutta Percha & Rubber Ltd., Toronto, Ontario.

The United Kingdom

Published December 5, 1923

434,055 Representation of a roll of narrow material with the center pushed up to form a cone-shape, with the word RAYBESTOS at bottom—brake linings and clutch linings included in Class 50. The Raybestos Co., 1427 Railroad avenue, Bridgeport, Connecticut, U. S. A.

441,732 SECTOMATIC—solid india rubber tires for road vehicles. J. B. Parker, 229 Marton Road, Middlesbrough, Yorkshire.

Published December 12, 1923

437,576 SALF—rainproof and waterproof clothing for men, but not including boots and shoes or similar articles. Société Anonyme du Loden Francais, 8 Place des Victoires, Paris, France. For service in the United Kingdom address in care of McKenna & Co., 31-34 Basinghall street, London, E. C. 2.

440,497 SILASHEEN—waterproof garments. Premier Garments, Ltd., Derby street, Cheetham, Manchester.

441,478 RELLIM—all goods included in Class 40, but not including tires and inner tubes. The Miller Rubber Co., 1269 South High street, Akron, Ohio, U. S. A. For service in the United Kingdom address Albert L. Mond, 19 Southampton Buildings, Chancery Lane, London, W. C. 2.

442,340 SUPERDENE—articles of clothing. The Popular Warehouses, Ltd., 112-113 Fore street, London, E. C. 2.

442,438 LULLABY—rubber and gutta percha goods exclusively in Class 40. Reliance Rubber Co., Ltd., 212-213 Upper Thames street, London, E. C. 4.

Published December 19, 1923

442,280 MAXICOMFY—rubber tires. Edward Brice Killen, 27 Queen Victoria street, London, E. C. 4.

442,515 SPADE—playing balls included in Class 49. Beldam Packing & Rubber Co., Ltd., 29 Gracechurch street, London, E. C. 3.

Published December 26, 1924

436,416 GRAGRIP—pads for horseshoes, included in Class 40. The Gray Horseshoe Pad Co., Ltd., 14 Suffolk street, Birmingham.

442,070 The signature of E. PATSY HENDREN, 26 Cairn avenue, Ealing, London, W. 5.

442,475 SIGNAL—engine and machine packings and jointings, tubular hose, asbestos cloth, tape, rope, yarn and similar prepared asbestos goods included in Class 50. The Beldam Packing & Rubber Co., Ltd., 29 Gracechurch street, London, E. C. 3.

New Zealand

Published November 1, 1923

18,691 Representation of a carton opened out so that all faces show, and on the two larger surfaces the representation of a heel, with the imprint ITS and below this the words THE I. T. S. RUBBER CO. OF CANADA, LTD., TORONTO, and the number 7; on the side-folds the firm's monogram, the word MEN'S printed twice so as to be read with the box turned either up or down, and the number 7 on each fold—rubber heels for boots and shoes included in Class 40. The Canadian I. T. S. Co., Ltd., West Toronto, Canada.

Designs

The United States

Issued* December 18, 1923

63,556 Tire tread. Term 14 years. E. B. Germain, assignor to The Dunlop Tire & Rubber Co. of America, both of Buffalo, N. Y.

63,578 Tire tread. Term 14 years. L. G. Nassoiy, Niagara Falls, New York.

63,590 Tire. Term 7 years. A. B. Schleicher, Los Angeles, California.

63,599 Tire tread. Term 14 years. C. J. Venn, Chicago, Illinois, assignor to Century Rubber Works, Cicero, Illinois.

Issued* December 25, 1923

63,642 Tire. Term 14 years. H. A. Githens, assignor to The Badger Rubber Works, both of Milwaukee, Wisconsin.

63,644 Resilient tire. Term 3½ years. S. Heintz, Youngstown, assignor by mesne assignments to The Republic Rubber Co., both in Ohio.

63,645 Tire. Term 14 years. H. Hoffstaedter, New York, N. Y.

Issued* January 8, 1924

63,712 Solid tire. Term 14 years. F. D. Fowler, assignor to Hood Rubber Co., Watertown, Massachusetts.

63,737 Tire tread. Term 7 years. T. G. Richards, Spokane, Washington.

63,738 Tire. Term 14 years. J. A. Scheid, Roxborough, Pennsylvania.

*Under Rule No. 167 of the United States Patent Office, the issue closes weekly on Thursday, and the patents of that issue bear date as of the fourth Tuesday thereafter.

The Dominion of Canada

6,032 Tire casing. H. H. Hastings, Toronto, Ontario.

Brazil—An Ideal Land for Rubber Cultivation

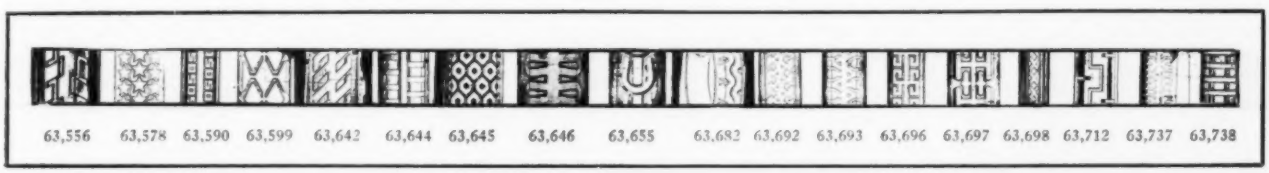
A contributor to the *Nederlandsch Indisch Rubber en Thee Tydschrift* takes issue with the statements in an article on the above subject published in THE INDIA RUBBER WORLD, April 1, 1923.

Much is made of the immense areas of fertile land along the Amazon, says the writer, but this really amounts to some lands bordering the lower part of the Amazon. And here the recurring floods might prove serious obstacles to cultivation, necessitating artificial drainage. The land beyond these so-called *varzea* is in parts so poor that it will bear only scrub. On the other hand, even inferior soils in Sumatra and Borneo support forest growth provided rainfall is adequate. In Brazil and the East, the climate and rainfall are similar, but the figures of Le Cointe for the rate of growth, showing that plantation trees in Brazil attain a girth of 70-85 cm. at one meter from the ground in the eighth year, are below those obtainable in the East.

As for the relative susceptibility to disease of Hevea in Brazil and in the East, the fate of plantations of *Hevea Guiyanensis*, native of Dutch Guiana, suggests that unpleasant surprises may be in store for the Brazilian rubber planter, and how would he cope with disease without the aid of experiment stations such as the Dutch have? In short, a wild plant will not necessarily better respond to cultivation in its native habitat than elsewhere; witness, too, the results of cinchona and *excelsa* coffee which flourish in Java as they never did in their native territories.

The unsettled political conditions in Brazil and all that this entails contrast strongly with the settled, orderly circumstances in the East.

Costs of opening up and running a plantation of 500 hectares were stated by Le Cointe to be 393,600 francs for the first seven years; the addition of purchase price and other expenses brings the total to something like a million francs. Production per hectare was estimated at 354 kilos and 758 kilos in the eighth and twelfth years respectively. Costs, exclusive of freight, packing, etc., came to 3.95 francs a kilo for 8-year-old Hevea and 1.90 francs a kilo for 12-year-old Hevea, which again compares unfavorably with Java figures.



63,646 Tire. Term 14 years. O. D. Hollenbeck, assignor to The Racine Horseshoe Tire Co., both of Racine, Wisconsin.

63,665 Tire. Term 14 years. H. O. Smith, Indianapolis, Indiana, assignor to The Racine Horseshoe Tire Co., Racine, Wisconsin.

Issued* January 1, 1924

63,682 Cushion tire. Term 14 years. J. R. Gammeter, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

63,692 Tire tread. Term 14 years. H. D. Mitchell, assignor to C. Kenyon Co., Inc., both of Brooklyn, New York.

63,693 Tire tread. Term 14 years. H. D. Mitchell, assignor to C. Kenyon Co., Inc., both of Brooklyn, New York.

63,696 Tire. Term 14 years. V. A. Parker, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

63,697 Tire. Term 14 years. C. Pharis, assignor to The Pharis Tire & Rubber Co., both of Newark, Ohio.

63,698 Tire tread. Term 14 years. R. W. Reinhart, Sandusky, Ohio.

The cost of living and wages are higher in Brazil than in the Orient. Brazil would have to import labor and good managers and would have to pay the latter high salaries, to say nothing of the tax of $1,500 per head leviable on employers of foreign managers.

The East could pay for its lessons, owing to the high prices prevailing while it was learning to cultivate rubber; despite high prices Brazil could not learn to plant rubber, as is shown by the fact that not one of the several plantations started in 1908-1912 is at present producing; then how will Brazil succeed now that prices are low and how will she compete without well-organized plantations, experiment stations, expert managers? The final word, therefore, is that the East has nothing to fear from Brazil.

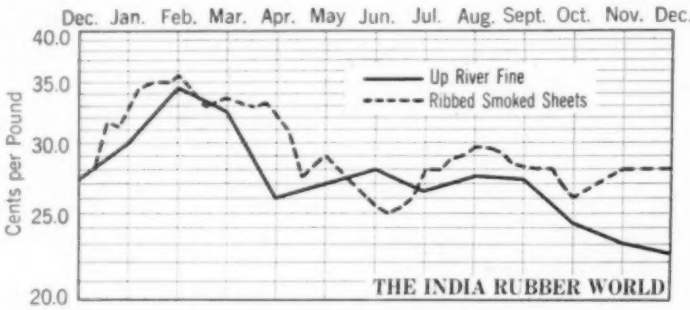
Annual Market Reviews for 1923

New York and London Rubber Markets—Cotton and Fabrics—Chemicals and Ingredients

New York Rubber Market

ABOUT October first, 1922, one month before the Stevenson plan restricting plantation rubber production became effective, the spot price of ribbed smoked sheets began to rise from the 15 cent level, mounting rapidly to 36½ cents on March 1, which was the peak for 1923.

In the four months succeeding the price declined to 25 cents early in July, which was the year's low. The highest price in the latter half of the year was about 30 cents early in September, the year closing at about 26½ cents.



Fluctuations of Standard Plantation and Upriver Fine Spot Rubber—1923

January, 1923, opened with ribs at 28½ cents, advancing steadily on higher cables from London. Trading and buying were active, due to general realization on the part of consumers of the prospective tonnage needed for the year. The well-founded belief that production for the next quarter would continue to be restricted to 60 per cent of capacity stimulated the advancing price movement.

The high level for spot ribs was 37 cents, reached January 24. April-June futures ranged from 35 to 38 cents; July-September from 37 to 39½ cents.

Reduced activity characterized the February market both among traders and in factory demand, owing to firmness in the price and the fact that the month is usually a dull period in the crude rubber market. Futures showed mild activity, October-December ranging from 37 to 38 cents.

The strong upward price movement which began in October culminated early in March at about 36 cents, as the peak price of 1923. This high was of short duration, the decline and range following reflected London market conditions. Many factories took advantage of the drop and sought scattered and distressed lots of smoked sheet. The closing price for the month was 33½ cents. October-December futures showed a narrower range than a month ago, averaging 35 to 36½ cents.

Dealers expected April to show increase in prices and factory buying interest. These conditions were not realized as anticipated. Consuming demand developed only in minor degree during most of the month and the continued drop in price was attributed to liquidation in London. The month closed with prices for ribs strong at about 32 cents, reflecting London activity caused by the purchases of large American consuming interests. The price

Fluctuations in the New York Spot Rubber Market—1913-1923

LOWEST AND HIGHEST NEW YORK SPOT RUBBER PRICES, 1915-1923

LOWEST AND HIGHEST NEW YORK SPOT RUBBER PRICES, 1915-1923

Prices in Cents Per Pound

		January	February	March	April	May	June	July	August	September	October	November	December
1915,	First latex crêpe	59 @ 64	57 @ 63	59 @ 60	59 @ 60	59 @ 61	60 @ 63	62 @ 63	59 @ 61	57 @ 58	61 @ 63	63 @ 78	76 @ 99
	Ribbed smoked sheets	65 @ 66	65 @ 66	65 @ 66	59 @ 65	59 @ 61	61 @ 63	62 @ 63	58½ @ 62	58½ @ 59½	59½ @ 62	61½ @ 75	75 @ 79
	Upriver fine	61 @ 75	57 @ 61	58 @ 60	57 @ 60	59 @ 61	61 @ 63	59 @ 63	56 @ 59	55 @ 57	55 @ 57	57 @ 76	68 @ 87
	Upriver coarse	45 @ 58	44 @ 48	45 @ 47	46 @ 46	45 @ 47	45 @ 47	42 @ 44	41 @ 42	41 @ 43	42 @ 47	44 @ 62	57 @ 72
1916,	First latex crêpe	70 @ 103	72 @ 90	83 @ 88	74 @ 82	61 @ 74	56 @ 62	52 @ 57	53 @ 56	54 @ 60	56 @ 60	60 @ 69	68 @ 82
	Ribbed smoked sheets	79 @ 102	75 @ 95	87 @ 93	78 @ 86½	64 @ 77½	58 @ 65¼	55 @ 65	56 @ 59½	56 @ 62½	62½ @ 65	62½ @ 74½	70½ @ 87
	Upriver fine	77 @ 99	73 @ 80	74 @ 78	72 @ 74	67 @ 72	62 @ 68	65 @ 68	65 @ 68	69 @ 74	71 @ 80	79 @ 83	78 @ 81
	Upriver coarse	60 @ 76	52 @ 60	56 @ 59	55 @ 57	50 @ 54	42 @ 50	41 @ 42	39 @ 40	41 @ 44	42 @ 46	45 @ 47	47 @ 56
1917,	First latex crêpe	75 @ 80	75 @ 85	82 @ 90	81 @ 83	83 @ 83½	65½ @ 80	65½ @ 67	66 @ 67	66½ @ 67½	63½ @ 65½	57 @ 61	54 @ 60
	Ribbed smoked sheets	75 @ 80	75 @ 75½	81 @ 90	81 @ 83	84 @ 84½	65½ @ 80	65½ @ 67	65 @ 67	65½ @ 67	62 @ 64½	56 @ 62	52 @ 61
	Upriver fine	75 @ 80	77 @ 79	76½ @ 80	75 @ 76½	75 @ 76	69 @ 74	68½ @ 69	68 @ 69	68 @ 69	63½ @ 66½	56 @ 62	54 @ 61
	Upriver coarse	50 @ 53	50 @ 53½	52½ @ 54	51 @ 51½	51¼ @ 54	49 @ 53	48½ @ 49	48 @ 48½	46 @ 48½	43½ @ 46	36 @ 41½	37 @ 41
1918,	First latex crêpe	53 @ 58	52½ @ 57	55½ @ 60	59½ @ 70	63 @ 68½	60 @ 63	63 @ ...	@ ...	60½ @ 63	59 @ 60½	41 @ 63	54 @ 63
	Ribbed smoked sheets	54 @ 57½	53 @ 57	55½ @ 60	59½ @ 70	62 @ 68½	62 @ ...	62 @ ...	62 @ ...	59½ @ 62	58 @ 59½	40 @ 61½	52 @ 61½
	Upriver fine	57 @ 61	56 @ 58	56 @ 60½	60 @ 70	68 @ ...	68 @ ...	68 @ ...	68 @ ...	63 @ 68	63 @ 68	57½ @ 68	61 @ 68
	Upriver coarse	37 @ 41	35½ @ 37½	33½ @ 34½	34 @ 38½	38 @ 42	40 @ ...	40 @ ...	40 @ ...	40 @ ...	35 @ 40	31 @ 40	36 @ 40
1919,	First latex crêpe	52 @ 58	56 @ 58	51 @ 56	47 @ 50½	45½ @ 48	40 @ 45	39½ @ 42½	41¾ @ 45½	45½ @ 52½	49½ @ 55	53 @ 54½	51 @ 54¾
	Ribbed smoked sheets	51 @ 56	54 @ 57	50 @ 54½	46½ @ 49½	44½ @ 47	39 @ 44	38½ @ 41½	39¾ @ 44½	44½ @ 51½	48½ @ 54	52 @ 54	51 @ 54½
	Upriver fine	58½ @ 61	58½ @ 59½	55½ @ 58½	56 @ ...	56 @ 56¾	55½ @ 56¾	55 @ 55½	54 @ 55	54½ @ 56	52 @ 55	49¼ @ 52	47 @ 49
	Upriver coarse	34 @ 36	34 @ 35	34 @ 35	34 @ ...	34 @ 34¾	32½ @ 34	32 @ 33	31½ @ 32	31½ @ 33½	32 @ 33	34½ @ 35	34 @ 35
1920,	First latex crêpe	51 @ 55¾	45¾ @ 51½	46 @ 48¼	42½ @ 46½	38 @ 43¾	37½ @ 39	30 @ 35¾	29½ @ 33½	24½ @ 29	21 @ 26	18½ @ 21	16¾ @ 19½
	Ribbed smoked sheets	45 @ 55	45 @ 56½	46 @ 48	42½ @ 45	38 @ 43	37¼ @ 39	29½ @ 35	29½ @ 33¾	23½ @ 28¼	20 @ 24	17½ @ 19	16¾ @ 18½
	Upriver fine	45 @ 50	42½ @ 45	41½ @ 43	40½ @ 42	39 @ 41¼	36¾ @ 38½	34¼ @ 35½	30 @ 35	26 @ 30	23½ @ 26	20½ @ 23	18 @ 20½
	Upriver coarse	34 @ 37	31½ @ 34	31¼ @ 31¾	30 @ 32	29½ @ 30½	27¼ @ 28¾	22 @ 32	20 @ 27	16½ @ 21	15 @ 16½	14½ @ 15½	14 @ 15
1921,	First latex crêpe	19 @ 21¾	19½ @ 20	18 @ 19½	18¾ @ 19½	17½ @ 19¼	13½ @ 17½	14 @ 17	14¼ @ 17	14 @ 16	15 @ 17	16 @ 19¾	18 @ 21¼
	Ribbed smoked sheets	18 @ 20½	17½ @ 19	16¼ @ 18	16 @ 17¾	15½ @ 17½	11½ @ 14¾	11¼ @ 15½	13¾ @ 15	13¾ @ 15¾	14¾ @ 17	16 @ 19¾	18¼ @ 21¼
	Upriver fine	18 @ 19½	17 @ 17½	17 @ 18	16½ @ 18	16½ @ 18½	15½ @ 18	15½ @ 17½	17½ @ 19½	17½ @ 21½	17 @ 23	22 @ 24½	22¾ @ 24
	Upriver coarse	13 @ 17	13¼ @ 14	11¼ @ 12	09 @ 10½	08¾ @ 09½	07 @ 09¼	07½ @ 09	08¾ @ 11½	09½ @ 11½	11¼ @ 12	12 @ 15	14 @ 15½
1922,	First latex crêpe	15¼ @ 21	14 @ 16¼	13¾ @ 15	14¾ @ 16¼	14¾ @ 16¼	14½ @ 16¼	14½ @ 15¾	14½ @ 15¾	13¾ @ 15¾	15¼ @ 22¾	22¾ @ 26	26¼ @ 28¾
	Ribbed smoked sheets	15½ @ 21¼	14¼ @ 16¾	13 @ 15¼	14¾ @ 16¾	14¾ @ 16½	14¾ @ 16½	14½ @ 15¾	13¾ @ 14¾	13¾ @ 15¾	15¼ @ 22¾	23¼ @ 26	26¼ @ 28¾
	Upriver fine	17½ @ 23	16¾ @ 18½	17 @ 17¾	17¼ @ 19¾	18 @ 18¾	18 @ 18¾	18 @ 20	18¾ @ 19¼	18½ @ 19	18½ @ 24	23¾ @ 25	25¼ @ 25¾
	Upriver coarse	12¾ @ 18	12 @ 13½	12 @ 13	12½ @ 14	12½ @ 13¾	12¼ @ 13	12¼ @ 14	13 @ 14	13½ @ 14	13½ @ 19	17 @ 20	17 @ 18½
1923,	First latex crêpe	28½ @ 37½	33¾ @ 36½	33¾ @ 35¾	31½ @ 34½	26¾ @ 31¾	24¾ @ 29¼	24¾ @ 28½	27¼ @ 30¾	28½ @ 30¾	26¼ @ 28½	27¼ @ 28½	26¾ @ 27½
	Ribbed smoked sheets	28½ @ 37½	33¾ @ 36½	33¾ @ 35¾	31 @ 34½	26¾ @ 31¾	24¾ @ 29¼	24¾ @ 28	27 @ 30½	28¾ @ 29¾	25¾ @ 28¾	26¼ @ 27¾	26 @ 27¾
	Upriver fine	24½ @ 36	33 @ 36	30½ @ 34	28½ @ 30¾	26 @ 28	26¼ @ 29	26¼ @ 26¾	27 @ 28½	26½ @ 28¾	22 @ 26¼	21½ @ 24½	21¾ @ 23½
	Upriver coarse	18½ @ 28¾	25 @ 28	26½ @ 28½	26½ @ 28½	21½ @ 25½	23½ @ 25	22¾ @ 23½	23 @ 24¼	22 @ 24¼	18 @ 22¼	17¾ @ 19¾	18 @ 19

range on October-December futures narrowed to 31½ to 33 cents.

In May the price trend was all downward, slowly at first then with a sudden drop about the middle of the month to 27 cents for ribs, the low of the decline from the March peak. The dull and weak market was due to continued liquidation, low London offerings and lack of factory demand in volume. October-December position was the only one in which there was any interest, at steady price level of 28 to 29 cents.

June tire production on reduced schedules deferred replenishment of factory rubber stocks. In the absence of demand quiet conditions ruled in a dull and weak market for the month. Prices declined steadily from 30 cents at the opening of the month to 25 cents at the close. October-December ribbed smoked sheets declined to 28 cents with no great interest shown in the position.

Mid-summer began with July sales in moderate volume to small consumers. Buyers and sellers soon became deadlocked in the matter of transactions at 25⅛ cents. Later, buying interest was influenced by heavy American trading in the London market; buying became restricted and all positions advanced. Tire manufacturers' interest was directed chiefly to futures for the last quarter year. The month closed with October-December ribs quoted at 26½ cents.

The dull conditions of July continued through August and the absence of buying interest was accentuated by tire over production and days of suspension as a mark of respect to the late President Harding. Rubber manufacturers generally showed very little buying interest and sought to postpone deliveries on contracts. The month closed with ribs firm at 29½ cents, reached by a steady rise from 27 cents on August 1. October-December was quoted 28 to 29 cents and January-March at 30-30½.

The early fall conditions did not meet expectations. The September market opened steady and strong but very little business was done, consuming demand being absent except in a small way. Smoked sheet prices declined during the month from 29½ cents at the beginning to 28½ cents at the close. Most interest was shown in November-December, January-March, and January-June positions. Sales were made for January-March at 29½ cents.

The decline in prices continued from September through October, sending ribs steadily downward to 26 cents at the close of the month. Market conditions were continuously dull. Crêpe, especially thin pale, was scarce and held at a premium. January-March and January-June rubber was firmly held at 27 to 29 cents. Factories interested in these positions were not buying.

A rising tendency took place in November spot market but trade was quiet, with very narrow price fluctuations. Consumers held off, buying but little for either spot or future delivery. The price for spot ribs at close of the month was 27½ cents. Trade in January-March position at 27½-28 cents was not active. January-June ruled from 26½ to 28⅜ cents.

The market for the closing month of the year was lifeless. General lack of interest on the part of buyers was attributed largely to the approach of year-end inventory period. During the middle of the month offers from London and the Far East were priced so high that buying on the part of dealers was almost impossible. Factory buying for January-March at 27½ cents was confidently expected but did not materialize to any considerable extent.

London Rubber Market

The price of standard grades at the opening of the year was 1*s.* 2¾*d.* Under the influence of heavy American purchases and speculative buying the price at the end of January reached 1*s.* 6½*d.* a pound. This price was the highest for the year. It fell away in February to 1*s.* 6¼*d.*, in March to 1*s.* 4¼*d.*, and in April to 1*s.* 3¼*d.* In May the reduction was more severe, the market falling to 1*s.* 1¼*d.*, the lowest for the year. The recovery toward the end of August brought the price back to 1*s.* 4*d.*

The market was dull during September and October, prices

again falling to 1*s.* 1¼*d.* November brought fair orders from America, due to the heavy fall in exchange, and the price rose to 1*s.* 2¾*d.* The price held between this figure and 1*s.* 2*d.* for the balance of the year.

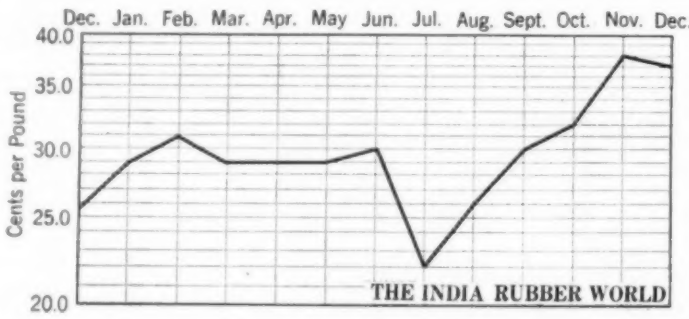
The history of the rubber industry for 1923 is held by English authorities as amply justifying the adoption of the Stevenson scheme for restriction of output, the objects of which were to assist the finances of Malaya and Ceylon and to relieve the depression in the industry by stabilizing the price of rubber. Allowance for the stocks in the Far East at the time restriction came into effect shows that there was a reduction in exports from Malaya and Ceylon of about 36,000 tons during the first year of restriction. This has been offset to some extent by an increase in the Dutch East Indian output. The total exports for 1923 are estimated at 408,000 tons, compared with 408,673 tons in 1922, and 322,021 tons in 1921.

Cotton and Fabrics

American Cotton

The price fluctuations of Middling spot cotton during 1923 were much sharper and of wider range than those of 1922. The lowest and highest prices of 1922 were 16.45 and 26.80 cents, occurring respectively at the end of January and middle of November. The lowest and highest prices of 1923 were 22.45, July 31, and 37.65, November 30.

These wider and sharper price changes in 1923 were due to record consumption early in the year, the increasing certainty, as the season advanced, that the crop would be small and inferior. In fact, it proved to be the third inadequate crop in succession, estimated by the Department of Commerce at 49.5 per cent, approximately 10,000,000 bales. This added to about 1,855,500 bales "back of the market" showed available stocks of about 12,000,000 bales for the year which is barely sufficient to meet domestic consumption and export needs that are constantly increasing.



Fluctuations of Spot Middling Cotton, 1923

This result of supply and demand was forecast very early in the year and although the rise was inevitable it was strongly resisted by the consuming demand.

The low spot price of 25.30 cents in May was attributed to the poor start of the season, short crop prospects, and liquidation. The lowest price of the year, in June, was influenced by the seasonal decline in tire manufacturing and the slower summer movement of cotton goods in all lines.

The advance in price of spot cotton from the lowest to the highest of the year, amounting to 15.2 cents, was accomplished at a very rapid rate, this rise being covered in a period of four months. The price during December fluctuated abruptly down and back from 37.65 to 33.75, reacting to 36.75 at the close of business for the year.

Egyptian Cotton

The movements of all long staple cotton prices responded to those of the domestic grades. The year opened with Egyptians in moderate demand, averaging 39 cents for the high grade Sakellaridis. This average dropped a cent in February but was recovered in March. A decline was in progress from March to July, when the lowest for the year was reached at 35 cents. Recovery was rapid from then to the year's end, when 47½ cents average was registered.

Medium Uppers averaged 32 cents in January and showed a consistent rise to May, rapidly declining from then to August, when it reached its lowest average for the year at 29½ cents. From that point the price turned upward in a sharp rise, the highest for the year being coincident with the termination of the year, at 43¾ cents.

Arizona Cotton

No. 1 Pima maintained a uniform average of one cent above No. 2 throughout the year except in December, when it was three cents higher. No. 1 began the year at 37½ cents, advanced till April, when it averaged 39, then the decline set in that carried it in August to 35 cents, the lowest average for the year. The balance of the year showed a steep rise to the close of the year, when 47½ cents was the average.

Average prices for No. 2 naturally followed under the same influences, averaging lowest in August at 34 cents and highest in December at 44½ cents.

Tire Fabrics

As viewed by the tire manufacturers the last year in the fabrics was a disappointment. The first quarter was profitable, the second quarter fairly so, the third quarter poor, and the fourth quarter poorer. The chief cause of this decline in business was overproduction based on too sanguine expectations on the part of the fabric manufacturers. The same was the case with tire production and as a result the fabric mill had to wait until consumption absorbed the surplus stock, and so did the tire mill as regards tires. It is said that unless the present production of fabrics is increased there will be a dearth of this material in a few months.

Three years ago Egyptians were the dominant factor in cord tire production. High grade Peelers suffice now and the tendency is to lessen the number of plies of fabric in the tire section.

At the opening of the year there was a price increase on builder fabric averaging 3 cents a pound and on cords 1½ cents a pound with further advances expected with placings of January orders due to shortage in supply of raw cotton and prospect demand based on 45,000,000 estimated tire output for 1923. The January prices were: carded Egyptian 72 cents and Peeler 67 cents; carded builder fabric, Egyptian 69 cents and Peeler 60 cents. Brisk business was experienced at these prices and by February tire manufacturers were considering contracting for supplies for the last half of the new year, owing to the high price of futures. February prices were quoted at 2 cents a pound under January prices on cords and builder fabric.

From March to June the high prices of January were quoted. Seasonal curtailment of tire production begun in May caused fabric price reductions by June. This decline reached the lowest prices of the year in August, when nominal quotations for carded grades were cords, Egyptian 60 cents, Peeler 54¼ cents; builder, Egyptian 58 cents, Peeler 52½ cents, and the trade marking time.

Owing to the fabric overstocked condition of tire manufacturers, leading fabric mills were turning their machinery to other and more profitable goods, influenced also by the popularity of cords

over woven fabrics. September prices, however, marked a distinct advance over those for August and for carded grades were: cords, Egyptian 65 cents, Peeler 62 cents; builder, Egyptian 62 cents, Peeler 59 cents.

For the remainder of the year business was unsatisfactory, with conditions unsettled. Tire manufacturers were seeking materials at very low prices and there was no apparent change in the tire fabric situation. In October carded peeler cords of the best grades were quoted as high as 62 cents, based on replacement values. November quotations advanced sharply to 70 cents and 64 cents respectively for carded Egyptian and Peeler cords, and to 66 and 67 cents respectively for Egyptian and Peeler builder fabrics.

The year closed with tire fabric commitments for the 1924 season in a state of suspense, with only a small portion of the business placed. The quotations then in effect were rated low although they were higher than in November. The closing figures for the year on carded grades were: Cords, Egyptian 80 cents, Peeler 68 cents; builder, Egyptian 75 cents, Peeler, 66 cents. It was predicted that increased buying activity would meet advancing prices.

Ducks, Drills, Sheetings

In gray goods generally, 1923 is reported a difficult year but prices averaged well. The price of cotton is too high and goods must go higher to reach proper proportions with raw material.

The first three months of the year cotton goods for the rubber trade were active in all lines and prices above the average for the year. The spring trade was disappointing and was followed by a general slump in August, when the lowest prices in essentially all lines were reached. The trade did not recover into active conditions during the remainder of the year.

In both hose and belting ducks, the price ranges were parallel, ducks being uniformly one cent above belting ducks, the respective averages being 48½ cents and 47½ cents a pound.

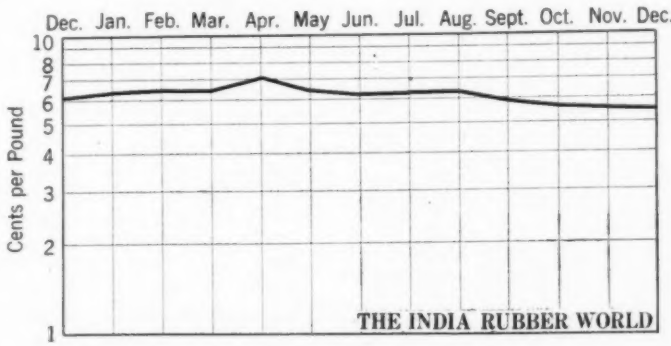
Sheetings, osnaburgs, drills, raincoat fabrics and tennis ducks on a yardage basis exhibited parallel but narrower fluctuations. The closing price for the year in each instance was somewhat higher than in January, 1923, except in the case of 40-inch 2.50 sheeting. The year-end prices were: Drills, 15⅞ cents; sheetings, 18¾ cents; osnaburgs, 23½ cents; tennis, 41½ cents; and 64 by 60 raincoat fabric, 14½ cents.

Compounding Ingredients

The weight of compounding ingredients required by the rubber industry in 1923 is estimated at approximately 350,000 tons. The trend of prices per pound is indicated by the accompanying chart, in which the values plotted represent monthly composite prices of 14 generally used materials as explained in the monthly market for compounding ingredients in the present issue.

It will be noted that for three months the composite price moved upward from its level in December, 1922, reaching its peak for 1923 in April. From this point the price assumed a downward tendency to the close of the year except for a moderate peak culminating in August at a distinctly lower level than that in April. The composite price at the end of the year was 12½ per cent lower than at the beginning of the year.

Last year's business is considered generally satisfactory, conditions fundamentally sound, and outlook good for business in 1924. Certain ingredients gained in popularity with rubber manufacturers during the year and new ones came forward.



Fluctuations of Composite Prices of Compounding Ingredients—1923

Clay is generally conceded essentially indispensable as a reinforcing and abrasive resisting rubber ingredient of high order, either alone or in conjunction with carbon black and zinc oxide. The price for clay for rubber work held steady and firm with tendency of the better grades to advance very slightly toward the close of the year.

Carbon black prices held at high levels most of the year, attributed in the early months to poor rail service and car shortage coupled with intensive demand from the tire industry. Shipping facilities gradually improved toward spring, and production was oversold. Development of old production plants and projected new ones did not become operative till late in the fall. In the fall and early winter carbon black demand by the rubber industry became routine only. Market conditions became confused, prices fell to approximately the cost of production with new production seeking outlet at any price.

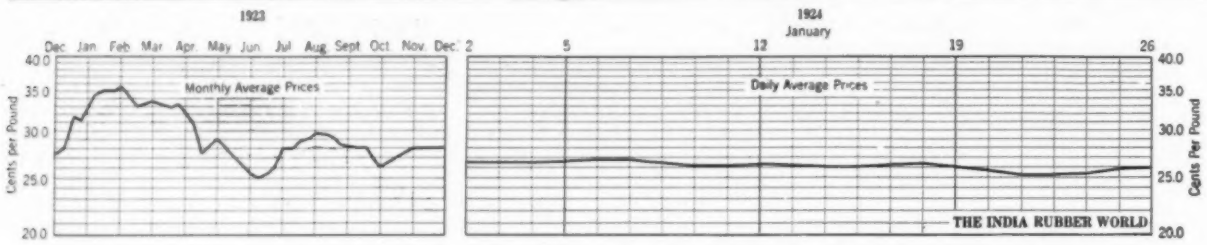
For a year previous to January, 1923, there had been no change in the price for zinc oxide. In February the price advanced ½ cent to 8 cents. Production at that time was sold six months ahead and in the spring sales exceeded all records for rubber and paint purposes. This condition continued, as far as the rubber industry was concerned, up to late summer, at which time curtailment of the output due to overproduction caused a marked decrease in orders for zinc oxide and this condition continued to the end of the year.

Business in litharge at the opening of 1923 showed a steady seasonal call at prices that had continued unmodified for a year, although in January the price advanced 1 cent a pound to 10¼ cents. In April production was sold ahead of six months and in May sales exceeded all records. This condition prevailed till July. In August orders decreased, due to reduction of tire output. Cautious buying by the rubber industry continued to the end of the year, at which time the price ruled 1¼ cents above that of the beginning of the year when the demand was less active.

EXPORTS FROM BRITISH GUIANA FOR THE TWELVE MONTHS FROM January 1 to December 15, 1923, include 948,961 pounds of balata, as compared with 689,501 pounds exported during a similar period in 1922. During 1923, 1,382 pounds of rubber were also exported.

PURCHASES BY FRANCE OF AMERICAN ARTIFICIAL LEATHER WERE valued during the calendar year 1922 at $441,246. For the first ten months only of 1923 the total is estimated at $506,937. Australia's importations of such goods have increased from $222,308 in 1922 to $273,288 for the ten months' period of 1923.

ENGLAND'S IMPORTATIONS IN 1922 OF AMERICAN RUBBER BOOTS reached a value of only $93,344, while the total for rubber shoes was estimated at $53,897. For the first ten months only of 1923 the values were respectively $208,620 and $56,189.



Ratio Graph of New York Average Sales Prices of Spot Ribbed Smoked Sheets

Review of the Crude Rubber Market

New York

THE crude rubber market was as continuously dull and inactive during January as during December. Factory buying interest was at a minimum, prices weak and declining, and moved slowly within narrow limits.

Spot-ribbed smoked sheets started the month steady at 26⅝ cents, and February-March rubber was 27 to 27⅛ cents. On the seventh and eighth the high for the month was reached at 26¼ cents and held for those days while April-June was firm at 28 cents.

All positions fell back one-fourth cent on the tenth of the month and prices continued to lose ground slowly for two weeks. The low for the month was 25⅛ cents for ribs with the market weak. Futures declined with spot April-June dropping to 27 cents on the twelfth, 26¾ cents on the sixteenth, and 26½ cents on the nineteenth day.

The week ending the twenty-first was perhaps the quietest period in a dull month, with complete absence of buying interest. Near the close of the following week, influenced by higher London cables and rumors of further restrictions of production, spot rubber sold at 26 cents from the low of 24¾ cents and April-June up ¾ cent to 26¾. The rise was soon over and spot and February were offered at 25¾ and April and June at 26⅝. Factory buyers were interested in the sudden rise but refrained from purchasing for actual requirements.

The month closed with buyers and sellers holding off in expectation of definite news in the restriction situation in view of the possible reduction of the export allotment to 55 per cent. On the twenty-ninth spot ribs closed at 25½ cents, with sound undertone and advancing tendency.

Dealers specializing in the lower plantation grades and Parás reported a quiet demand and no change in prices. Balatas with supplies on hand were fairly firm with no demand.

Importations of all grades during December, 1923, were 27,871 tons, compared with 31,112 tons one year ago. Plantation arrivals for December, 1923, were 26,004 tons, compared with 35,500 tons one year ago. Total importations of all grades for the twelve months ended December 31, 1923, were 299,858½ tons, compared with 290,970 tons for 1922.

Spot and future quotations on standard plantation and Brazilian grades were as follows:

PLANTATION. January 2. Spot first latex crêpe, 26½-26⅝ cents; Jan., 26½-26⅝ cents; Feb.-Mar., 26¾-27 cents; Jan.-June, 27¼-27⅜ cents; Apr.-June, 27½-27¾ cents.

January 26. Spot first latex crêpe, 25¾-26 cents; Jan. 25¾-26¼ cents; Feb.-Mar., 26-26½ cents; Apr.-June, 25¾-26 cents; July-Sept., 26½-27½ cents.

January 2. Spot ribbed smoked sheets, 26¼-26⅜ cents; Jan., 26⅛-26½ cents; Feb.-Mar., 26¾-27 cents; Jan.-June, 27-27¼ cents; Apr.-June, 27⅜-27½ cents.

January 26. Spot ribbed smoked sheets, 25½-26 cents; Jan., 25½-26 cents; Feb.-Mar., 25¼-26 cents; Apr.-June, 26-26¾ cents; July-Sept., 26½-27¼ cents.

January 2. Spot No. 1 amber crêpe, 25¼-25½ cents; Jan., 25¼-25½ cents; Feb.-Mar., 25¾-26 cents; Jan.-June, 26-26¼ cents; Apr.-June, 26¼-26⅜ cents.

January 26. Spot No. 1 amber crêpe, 23¾-24¼ cents; Jan., 23¾-24¼ cents; Feb.-Mar., 24-24¾ cents; Apr.-June, 24¾-25¼ cents; July-Sept., 25-25⅝ cents.

January 2. Spot No. 1 rolled brown crêpe, 25-25⅛ cents; Jan., 25-25⅛ cents; Feb.-Mar., 25¼-25½ cents; Jan.-June, 25¾-26 cents; Apr.-June, 26-26⅛ cents.

January 26. Spot No. 1 rolled brown crêpe, 24-24¼ cents; Jan. 23½-24 cents; Feb.-Mar., 24-24⅜ cents; Apr.-June, 24-24⅝ cents.

SOUTH AMERICAN PARÁS AND CAUCHO, January 2. Spot, upriver fine, 22¼-22½ cents; islands fine, 19½-19¾ cents; upriver coarse, 18-18¼ cents; islands coarse, 11-11½ cents; Cametá, 12½-12¾ cents; caucho ball, 20¼-20½ cents.

January 26. Spot, upriver fine, 21 cents; islands fine, 19 cents; upriver coarse, 17¼ cents; Cametá, 11½ cents; caucho ball, 18-19¾ cents.

London

The spot market opened featureless at 14¼ pence and very little interest was manifest. The price rose promptly to 14⅜ pence and was firm on the appearance of local and American support but soon developed weakness and declined fractionally to the middle of the month when spot was at 14⅛ pence during most of the third week, dropping to 13⅞ pence the week after, in a continuously dull market.

Early in the month there occurred a big London dock fire involving the loss of about 1,000 tons of rubber, yet the market was able to buy the necessary replacement of the lost rubber without affecting prices to any extent.

Reported London weekly stocks for the past month were as follows: December 24, 59,958 tons; January 8, 59,641 tons; January 15, 57,318 tons; January 22, 57,054 tons.

New York Quotations

Following are the New York spot quotations per pound, for one year, one month ago, and January 26, the current date:

Plantation Hevea	December 26, 1922	December 26, 1923	January 26, 1924
LATEX			
Rubber latex (Hevea)	*per gal.* $1.25	*per gal.* $1.30 @	*per gal.* $1.30@
CREPE			
First latex	.27¼@	.27⅛@	.25¾@.26
Off latex	.26½@	.27¼@	.25½@.26
Amber No. 1	.26½@	.25¾@	.23¾@.24¼
Amber No. 2	.26 @	.24¾@	.24 @.24¼
Amber No. 3	.25½@	.24½@	.23⅝@.23¾
Brown, clean, thin	.26¼@	.24½@	.23½@.23⅝
Brown, specky	.25½@	.24 @	.23¼@.23¾
Brown, rolled	.25¼@	.25 @	.24 @.24¼

Crude Rubber Market—*Continued*

SHEET	December 26, 1922	December 26, 1923	January 26, 1924
Smoked, ribbed	$0.27¼ @	$0.26¾ @	$0.25½ @.26
Smoked, plain	.25 @	†.25¼ @	@
Unsmoked	.24½ @	†.24¼ @	@
SCRAP			
Colombo scrap No. 1	.22 @	†.23 @	@
Colombo scrap No. 2	.20 @.21	†.22 @	@
East Indian			
PONTIANAK			
Banjermassin	.08½ @	.08¾ @	.08½ @.08¾
Palembang	@	.09¾ @	.09 @
Pressed block	.13 @.15	.14½ @.14¾	.14½ @
Sarawak	.07¾ @	†.07 @.07½	.08 @
South American			
PARAS			
Upriver, fine	.24½ @	.22 @	.21 @
Upriver, fine	*.33 @	*.31¾ @	*.31½ @
Upriver, medium	.22½ @	.19 @	.18 @
Upriver, coarse	.18½ @	.18½ @	.17¼ @
Upriver, coarse	@	*.29 @	*.30 @
Islands, fine	.21½ @	.20 @	.19 @
Islands, medium	.19¾ @	†.17 @	.16½ @
Islands, coarse	.14½ @	.12 @	.11 @
Cametá	.14¼ @	.13 @	.11½ @
Acre Bolivian, fine	.25 @.25½	.22½ @	.21¼ @.21½
Acre Bolivian, fine	*.33 @	*.32 @	*.32 @
Beni Bolivian	.25¼ @	†.23 @	.21½ @
Madeira, fine	.26¾ @	†.23 @	.21½ @.22
Peruvian, fine	.24 @	†.21 @	.20 @
Tapajos, fine	.22½ @.23	.20½ @	.20 @
CAUCHO			
Upper caucho ball	.21½ @	.20 @	.19¼ @
Upper caucho ball	*.27 @	*.29¾ @	*.29 @
Lower caucho ball	.20 @	.19 @	.18 @
Maniçobas			
Ceará negro heads	†.20 @	.20 @	.20 @
Ceará scrap	†.18 @	.08 @	.08 @
Maniçoba 30% guaranty	†.15 @	@	.18 @
Mangabeira, thin sheet	†.20 @	.22 @	.22 @
Centrals			
Central scrap	.17½ @	@	.17 @
Central wet sheet	.11 @.12	.12 @	.14 @
Corinto scrap	.18½ @	.17½ @	.17 @
Esmeralda sausage	.18 @	.17¾ @	.17 @
Guayule washed & dried	.27 @	.25 @	.25 @
Africans			
Benguela, No. 1, 28½%.	.11 @.12	.16 @	.16 @
Benguela, No. 2, 32½%.	.10 @.11	.12 @.13	.11 @.12
Congo prime, black upper	.14 @	.20 @	.19 @
Congo prime, red upper	.16 @	.18 @.19	.20 @
Kassai, black	.13 @	.19 @.20	.19 @
red	.15 @	.19 @	.20 @
Gutta Percha			
Gutta Siak	.21 @.22	.17½ @	.18¾ @.19
Gutta Soh	@	.29 @	.22 @
Red Macassar	3.00 @	2.90 @	2.90 @3.00
Balata			
Block, Ciudad Bolivar	.70 @.73	.69 @.70	.69 @
Colombia	.58 @.60	.56 @	.54 @
Panama	.50 @.52	.56 @	.53 @
Surinam, sheet	.77 @.80	.74 @	.71 @.73
amber	.80 @.83	.78 @	.76 @
Chicle			
Colombia	.25 @.30	.25 @	.25 @.30
Honduras	.62 @	.62 @	.62 @.63
Venezuela	.63 @	.63 @	.63 @.64
Yucatan, fine	.65 @	.65 @	.65 @

*Washed and dried crêpe. Shipment from Brazil.
†Nominal.

Comparative Low and High New York Spot Rubber Prices

	January 1924*	January 1923	January 1922
PLANTATIONS			
First latex crêpe	$0.24¼ @$0.27	$0.27 @$0.37¼	$0.17 @$0.21
Smoked sheet, ribbed	.24¼ @ .26⅛	.28⅝ @ .37¼	.17 @ .21¼
PARAS			
Upriver, fine	.21 @ .23¼	.24½ @ .36	.20¼ @ .23
Upriver, coarse	.17¼ @ .18½	.18½ @ .28¾	.13 @ .15
Islands, fine	.18¾ @ .19¾	.22 @ .33½	.18½ @ .21
Islands, coarse	.11 @ .11½	.13½ @ .25	.09 @ .11
Cametá	.11¾ @ .12¾	.13½ @ .20	.08 @ .11½

*Figured to January 26, 1924.

Reclaimed Rubber

Production of reclaimed rubber is proceeding in good volume. Rubber goods manufacturing companies generally, however, are buying mostly for current needs, declining to consider contracts for future requirements until more active conditions prevail. Reclaimers' stocks are ample to supply promptly any demands made upon them.

It is notable that widespread interest exists in all lines of the rubber manufacturing industry in the high tensile reclaims now being offered. The demand for such stocks has attained such volume that reclaimers are able to cut production costs and are offering standard reclaims at lower quotation than one month ago, notwithstanding indications of strengthening in scrap prices as demand increases.

The year just past witnessed an expansion of reclaimed rubber output and keener realization of manufacturers as to its technical value. It is no longer regarded in the light of an adulterant filler or substitute for crude rubber but is valued on its technical merits as an indispensable low volume cost compounding ingredient serving as a stock plasticator, in some instances included in rubber products to better advantage than low grade or even high grade rubbers.

New York Quotations

January 26, 1924

Auto Tire		
Black	lb.	$0.08¾ @$0.09¼
Black, washed	lb.	.11 @ .11¾
Dark gray	lb.	.09¾ @ .10¼
Light gray	lb.	.11 @ .11¼
White	lb.	.15 @ .15¾
Shoe		
Unwashed	lb.	.09¾ @ .10
Washed	lb.	.13 @ .13¼
Tube		
No. 1	lb.	.15¼ @ .15½
No. 2	lb.	.12¼ @ .12½
Uncured Tire Friction		
No. 1	lb.	.22½ @ .23½
No. 2	lb.	.17 @ .18
Miscellaneous		
High grade red	lb.	.13¼ @ .13½
High tensile, black	lb.	.15¾ @ .16
Mechanical blends	lb.	.05 @
Truck tire	lb.	.08¼ @ .08½

New York Average Spot Rubber Prices

PRICES IN CENTS PER POUND

	December, 1923							January, 1924														
	24	25*	26	27	28	29	31	1*	2	3	4	5	7	8	9	10	11	12	14	15	16	17	18	19
PLANTATIONS																								
Sheet																								
Ribbed smoked	26⅞	....	26⅞	26⅝	26⅝	26⅝	26½	....	26¼	26½	26½	26⅝	26⅝	26½	26¾	26¼	26⅛	26⅛	25⅞	26¼	26	26⅛	25⅞	25½
Crêpe																								
First latex	27	....	27¼	27¼	27	26⅞	26¾	....	26½	26⅝	26¾	26⅞	26⅞	26¾	26⅜	26½	26½	26½	26⅛	26⅜	26¼	26¼	26⅛	25⅞
Off latex	26⅝	....	26⅝	26¾	26¼	26½	26½	....	26	26¼	26½	26⅛	26⅜	26½	26⅛	26½	26⅛	26½	25¾	26	26	26	25¾	25½
No. 1 blanket	24⅝	....	25	25¼	25⅛	25⅛	25⅛	....	24⅞	24⅞	25⅛	25	25¼	25¼	25	24½	24¾	24½	24¼	24½	24½	24⅝	24½	24⅛
No. 2 blanket	24⅜	....	24⅜	24½	24½	24½	24⅜	....	24⅜	24⅜	24⅝	24½	24⅝	24⅝	24½	24¼	24¼	24⅛	24	24½	24	24⅛	24⅛	23¾
No. 3 blanket	24	....	24⅛	24¼	24⅛	24⅛	24	....	24	24⅛	24	24⅛	24¼	24¼	24⅛	23⅞	23⅞	23¾	23⅝	23¾	23⅝	23⅝	23½	23½
Thin, clean brown	24⅛	....	24⅛	24⅜	24⅛	24⅜	24¼	....	24¼	24¼	24½	24⅜	24¾	24¾	24⅜	24	24	23⅞	23¾	23¾	23¾	23¾	23⅝	23½
Specky brown	23½	....	23⅝	23¾	23¾	23¾	23¾	....	23⅝	23⅝	23⅝	23¾	24	24	23⅞	23⅝	23⅜	23½	23⅛	23¼	23¼	23⅜	23¼	23⅛
Rolled brown	24⅝	....	24¾	24¾	24¾	24¾	24¾	....	24⅝	24⅛	24½	24½	24¾	24¾	24⅝	24½	24⅜	24⅜	24⅜	24⅜	24½	24½	24⅜	24⅛

*Holiday

Plantation Rubber Exports from Dutch East Indies

Java and Madura

To—	October 1922 Kilos	October 1923 Kilos	Ten Months Ended October 1922 Kilos	Ten Months Ended October 1923 Kilos
Netherlands and Netherlands f. o.	163,000	213,000	2,913,000	2,525,000
England	269,000	541,000	3,937,000	4,650,000
Germany	156,000	12,000	1,061,000	300,000
France	12,000	15,000	227,000	425,000
Belgium	.....	9,000	11,000	9,000
Italy	14,000	23,000	179,000	245,000
Canada	.....	.....	.....	54,000
United States	2,316,000	1,739,000	15,254,000	16,735,000
Singapore	115,000	80,000	2,163,000	1,284,000
Japan	.....	25,000	127,000	324,000
Australia	.....	6,000	93,000	170,000
Total	3,045,000	2,663,000	25,965,000	26,721,000
Ports of Origin:				
Tandjong Priok	1,533,000	1,153,000	11,114,000	10,932,000
Cheribon	12,000	.....	34,000	68,000
Samarang	105,000	194,000	630,000	1,897,000
Soerabaia	1,292,000	973,000	12,520,000	10,156,000
Tjilatjap	33,000	105,000	432,000	749,000
Banjoewangi	9,000	33,000	625,000	419,000

Belawan-Deli

To—	October 1922 Kilos	October 1923 Kilos	Ten Months Ended October 1922 Kilos	Ten Months Ended October 1923 Kilos
Netherlands and Netherlands f. o.	157,000	178,000	1,299,000	1,550,000
England	585,000	736,000	1,694,000	3,170,000
Germany	40,000	30,000	490,000	190,000
France	13,000	55,000	94,000	257,000
Belgium	.....	.....	37,000	204,000
Italy	10,000	23,000	32,000	249,000
Austria	.....	5,000	.....	5,000
United States	2,960,000	2,608,000	17,566,000	21,540,000
Penang	8,000	55,000	35,000	475,000
Straits Settlements	.....	.....	.....	152,000
Singapore	336,000	138,000	2,640,000	2,093,000
Japan	.....	.....	10,000	.....
Hongkong	.....	.....	.....	9,000
Australia	.....	.....	503,000	1,000
South America	.....	.....	26,000	.....
Total	4,109,000	3,828,000	24,426,000	29,895,000

British Malaya Rubber Exports

An official report from Singapore states that the gross exports of rubber from British Malaya in the month of December, 1923, amounted to 25,501 tons (57,122,200 pounds); the amount of rubber imported was 7,564 tons (16,943,500 pounds); so that net exports amounted to 17,937 tons as compared with 13,858 tons in the corresponding month of 1922.

Appended are the comparative statistics:—

	1922 Gross Exports Tons	1922 Net Exports Tons	1923 Gross Exports Tons	1923 Net Exports Tons
January	18,962	16,027	22,871	18,513
February	20,033	18,426	19,907	15,818
March	19,304	17,812	23,646	18,538
April	14,400	12,539	24,008	18,619
May	24,789	22,095	20,115	15,095
June	19,617	17,330	18,621	13,664
July	21,964	18,822	16,749	11,125
August	21,316	18,575	19,806	12,764
September	20,238	17,265	21,955	16,686
October	27,466	23,472	21,424	15,083
November	21,642	16,474	17,543	10,101
December	18,427	13,858	25,501	17,937
Total	248,158	212,695	252,146	183,943

The Market for Rubber Scrap

New York

Although rubber scrap during the last nine months of 1923 failed to come up to the rate of business of the first quarter of the year, consumption was about 90,000 tons as compared to 74,000 tons in 1922.

The demand for rubber scrap during January was steady, but did not attain the proportions hoped for by dealers. Prices on all grades were firm and represent good value at minimum profit.

BOOTS AND SHOES. This grade has not been active, most deliveries being confined to old orders. Prices were firm at $2.87½ a hundred for the first three weeks of the month and strengthened to $3 in the last week.

TIRES. Prices on mixed tires were $13 to $14 a ton early in the month without much activity. Demand improved during the remainder of the month which closed strong at $14.

Other standard grades of rubber scrap were nominal and without interest.

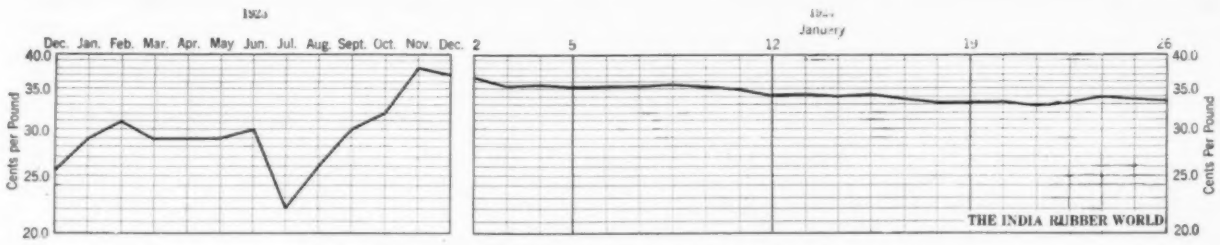
Consumers' Quotations for Carload Lots Delivered

January 26, 1924

Boots and Shoes			
Boots and shoes, black	lb.	$0.02⅞ @	$0.03
Trimmed arctics	lb.	.02½ @	.02¾
Untrimmed arctics	lb.	.01½ @	.01¾
Hard Rubber			
Battery jars, black compound	lb.	.01 @	.01¼
No. 1 scrap	lb.	.07 @	.08
Inner Tubes			
No. 1	lb.	.04 @	.04¼
No. 2	lb.	.02¾ @	.03
Red	lb.	.02¾ @	.03
Mechanicals			
Black scrap, mixed	lb.	.00¾ @	—
Heels	lb.	.00½ @	—
Horse-shoe pads	lb.	.01 @	—
Hose, air brake	ton	16.00	@17.00
regular	ton	13.00	@14.00
Red, scrap, mixed	lb.	.01½ @	.02
White, scrap, mixed	lb.	.01½ @	.02
Tires			
PNEUMATIC			
Auto peelings	lb.	.01 @	.01¼
Bicycle	ton	10.00	@12.00
Standard white auto	ton	28.00	@32.00
Mixed auto	ton	13.00	@14.00
Stripped, unguaranteed	ton	10.50	@11.00
SOLID			
Carriage	ton	20.00	@25.00
Irony	ton	10.00	@15.00
Truck, clean	ton	20.00	@25.00

United States Crude and Waste Rubber Imports for 1923 (By Months)

	Plantations	Parás	Africans	Centrals	Guayule	Manicoba and Matto Grosso	Total 1923	Total 1922	Balata	Miscellaneous	Waste
January ..... tons	29,354	1,233	549	61	.....	.....	31,197	21,867	64	257	382
February	21,815	2,004	308	93	.....	..	24,220	28,973	25	397	684
March	31,673	1,482	742	19	.....	..	33,916	28,702	124	738	863
April	29,922	1,095	399	30	142	.....	31,588	14,444	40	1,504	507
May	34,609	1,042	333	24	167	9½	36,184½	20,622	55	463	361
June	31,574	1,032	286	42	.....	.....	32,934	15,750	28	771	300
July	17,459	636	146	23	328	17	18,609	25,245	68	436	121
August	18,083	297	88	30	164	12	18,674	21,764	54	1,039	127
September	10,890	342	69	65	15	30	11,611	28,288	164	165	83
October	18,728	410	155	106	263	.....	19,662	23,945	99	469	90
November	12,380	725	146	85	52	4	13,392	23,258	48	302	53
December	26,004	1,427	282	65	93	.....	27,871	38,112	100	484	183
Totals, 12 months, 1923.. tons	282,491	11,925	3,503	643	1,224	72½	299,858½	.....	869	7,025	3,754
Totals, 12 months, 1922.. tons	276,649	11,092	2,691	135	281	122	.....	290,970	496	4,924	685



Ratio Graph of New York Daily Prices of Spot Middling Upland Cotton

The Market for Cotton and Other Fabrics

New York

AMERICAN COTTON. The new year found the cotton market watchful for signs of increased activity in manufactured cotton and changes in the southern spot situation. The problem now is whether the restricting effect of prices between 35 and 37 cents has been sufficient to hold demands within the indicated supply of 10,000,000 bales pending the formulation of new crop estimates. Cotton is reported to be passing into consumption at a rate probably too high to be maintained by the available supply, but domestic mill curtailment is increasing and traders expect exports to fall off after January.

Prices during the month have tended generally downward, dating from January 2, when spot middlings were at 36.70 cents, dropping in three weeks to 32.90 cents. Fluctuations upward totaled only about one-half in amount those downward.

EGYPTIAN COTTON. January opened with demand quiet. Changes in prices for domestic cotton have had little effect on the extra staple sorts. Spot middlings and higher grades showed declines of ½ to 1 cent early in the month, and have continued downward. Egyptian futures have also been following domestic futures. Cotton for prompt shipment to Boston was quoted January 5 with medium Sakellaridis at 46¾ cents and medium uppers at 43¼ cents. Both prices were ¼ cut above those quoted the last week in December, 1923.

January 12 these grades went to 44⅞ cents and 43 cents respectively in a continued decline, which in the absence of pronounced demand brought the quotations for medium Sak on January 19 to 43½ cents and Medium Uppers to 42½ cents on the same date. One reason for the lessened demand for Egyptian cotton of high grades is the tendency of American tire manufacturers to favor carded domestic Peeler cotton, occasioned by close competition based on very low tire prices to consumers.

Cotton Fabrics

DUCKS, DRILLS AND OSNABURGS. The market for these goods has been quiet and firm with indications of more activity in the near future. Factors are looking for an increasingly better trade of gradual development. A sale of 1,000,000 pounds of hose and belting duck was reported made early in the month.

RAINCOAT FABRICS. Business in weather-proofs is active for spring trade and demand for bombazine, plaids and surface prints is starting up although confined as yet to few lines in small volume pending improvement from hand to mouth conditions of buying prevalent in most lines of manufacturing.

SHEETINGS. The January demand for sheetings was moderate but will doubtless rapidly improve if lower prices for raw cotton can be established around 32 cents. In the rubber trade future commitments are slow to develop under existing conditions. There is still strong resistance to the advance in cotton goods inevitably due, owing to the shortness of the raw cotton supply.

TIRE FABRICS. Tire prices quoted are such as standard goods could probably be purchased at for seasonable delivery. The commitment season was in full swing January 1, although tire producers did not hasten to place their requirements. Fabric mills that had begun to dismantle their mills have thought better of it and manufacturing is now proceeding in nearly normal fashion. While fabrics for tires are selling for low prices the figures are not always as low as those obtaining for mechanical rubber goods manufactures.

By the middle of the month the trade was through with January-March commitments and tire companies were reported as then placing orders for several million pounds of fabrics representing deliveries to be made during the second quarter of the year. The greater use is noted of 13/3/3 ply fabrics by even the foremost tire companies.

New York Quotations

January 26, 1923

Drills

38-inch 2.00-yard	yard	$0.26 @
40-inch 3.47-yard		.15⅝ @
52-inch 1.90-yard		.28 @
60-inch 1.52-yard		.34⅞ @

Duck

CARRIAGE CLOTH

38-inch 2.00-yard	yard	.27½ @
40-inch 1.47-yard		.38⅛ @
72-inch 16.66-ounce		.67⅛ @
72-inch 17.21-ounce		.68⅞ @

MECHANICAL

Hose	pound	.54½ @
Belting		.54 @

TENNIS

52-inch 1.35 yard	yard	.40¼ @

Osnaburgs

40-inch 2.35-yard	yard	.23 @
40-inch 2.48-yard		.21⅞ @
40-inch 3.00-yard		.18 @
37¼-inch 2.42-yard		.22¾ @

Raincoat Fabrics

COTTON

Bombazine 64 x 60	yard	$0.14½ @
Bombazine 60 x 48		.13½ @
Plaids 60 x 48		.14 @
Plaids 56 x 44		.13¼ @
Surface prints 60 x 48		.15 @
Surface prints 64 x 60		.16 @

Sheetings, 40-inch

48 x 48, 2.50-yard	yard	.18¾ @
48 x 48, 2.85-yard		.16¼ @
64 x 68, 3.15-yard		.16¾ @
56 x 60, 3.60-yard		.14¾ @
48 x 44, 3.75-yard		.13¾ @

Sheetings, 36-inch

48 x 48, 5.00-yard	yard	.10¼ @
40 x 40, 6.15-yard		.08 @

Silks

Canton, 38-inch	yard	.37½ @

Tire Fabrics

SQUARE WOVEN 17¼-ounce

Egyptian, karded	pound	$0.65 @ .66
Peeler, karded		.60 @ .62

CORD 23/5/3

Egyptian, combed	pound	.79 @ .80
Egyptian, karded		.68 @ .72
Peeler, combed		@
Peeler, karded		.63 @

CORD 13/3/3

Peeler, karded	pound	.60 @ .63

LENO BREAKER

8-oz. Peeler, karded	pound	.62 @ .63
10-oz. Peeler, karded		.62 @ .63

CHAFER

8.25-oz. Peeler, karded	pound	.63 @ .65
9.5-oz. Peeler, karded		.63 @ .65
12-oz. Peeler, karded		.62 @ .63
14-oz. Peeler, karded		.62 @ .64

The Cotton Outlook

World Raw Cotton Situation

ACCORDING to the Department of Commerce statistical summary, world production and consumption increased and stocks decreased during the 1922-23 season ended July 31, 1923.

Production

The world commercial production of all kinds of cotton, including American, in 1922-23 is estimated at 17,647,000 bales, an increase of 2,963,000 bales, or 20 per cent over that of 1921-22, but 547,200 bales or 3 per cent less than the average for the past five years. The total actual crop amounted to 18,695,000 bales in 1922-23, compared with 15,326,000 in 1921-22. The following table shows the estimated cotton production by principal countries for the past four years:

Estimated World Production of Cotton

	1919-20 Bales	1920-21 Bales	1921-22 Bales	1922-23 Bales
United States	11,425,000	13,440,000	7,954,000	9,762,000
India [1]	4,475,000	2,600,000	3,448,000	4,048,000
China [1]	1,150,000	1,045,000	1,175,000	1,300,000
Egypt	1,305,000	1,285,000	902,000	1,170,000
Brazil	560,000	450,000	505,000	553,000
Mexico	210,000	215,000	147,000	178,000
Peru	175,000	155,000	157,000	137,000
Chosen	.....	.....	92,000	103,000
Russia	440,000	85,000	43,000	55,000
Uganda	.....	.....	31,000	75,000
All other countries	480,000	390,000	230,000	266,000
Total bales	20,220,000	19,665,000	14,684,000	17,647,000

[1] Commercial crop only.

The production of cotton in the United States in 1922-23 amounted to 9,762,000 bales, an increase of 1,808,000 bales, or 23 per cent over that of 1921-22, but 1,161,600 bales, or 10½ per cent less than the average for the past five years.

Consumption

World consumption of all kinds of cotton, including American, in 1922-23, is estimated at 21,041,000 bales, 1,006,000 bales or about 5 per cent greater than in 1921-22, and 1,720,750 bales or nearly 9 per cent greater than the average for the past four years. The following table shows the estimated consumption of cotton by countries for the past two years:

Estimated World Consumption of Cotton

	All Kinds		American	
	1921-22 Bales	1922-23 Bales	1921-22 Bales	1922-23 Bales
United States	5,708,000	6,490,000	5,411,000	6,148,000
Canada	205,000	207,000	200,000	204,000
Brazil	376,000	442,000	.....	.....
All other American	139,000	175,000	20,000	20,000
United Kingdom	2,900,000	2,875,000	2,120,000	1,825,000
All other European	5,233,000	5,120,000	3,590,000	3,477,000
India	1,872,000	1,751,000	56,000	27,000
Japan	2,200,000	2,372,000	798,000	747,000
China	1,334,000	1,541,000	180,000	100,000
All other countries	68,000	68,000	.....	.....
Total bales	20,035,000	21,041,000	12,375,000	12,548,000

World consumption of American cotton during the season of 1922-23, it will be noted, is estimated at 12,548,000 bales, 173,000 bales or nearly 1½ per cent more than in 1921-22.

Cotton consumption of all kinds in the United States in 1922-23 was 6,490,000 bales or nearly 14 per cent more than in 1921-22, and 593,000 bales or 10 per cent more than the average for the past four years. To the United States is credited 31 per cent of the world's total consumption, against 38 per cent in Europe and 31 per cent in all other countries. Before the war Europe was consuming about 55 per cent, the United States, 24 per cent, and all other countries 21 per cent.

With decreased production of American cotton and somewhat increased consumption in the United States, the production of the American crop exported has diminished. In the five-year period, 1909-10 to 1913-14, the production averaged 13,033,000 bales, and 9,299,000 bales were exported, or approximately 71 per cent of the crop. In the four-year period 1919-20 to 1922-23, 6,008,000 bales were exported, which represented 56 per cent of the average production of 10,644,000 bales during these years.

Stocks

World stocks of all kinds, visible and invisible, at the end of the 1922-23 season on July 31, 1923, were estimated at 6,341,000 bales, against 9,323,000 bales at the end of the previous season and 14,752,000 bales the year before that. World stocks of American cotton on the same date were estimated at 3,065,000 bales, against 5,129,000 bales at the end of the previous season and 9,351,000 bales the year before that.

TIRE AND RUBBER FABRIC PRODUCTION, 1919-21

The statistical department of the National Association of Cotton Manufacturers has recently prepared a tabulation in connection with cotton goods production during the years 1919 and 1921. Included in the summary is the following:

UNITED STATES COTTON PIECE GOODS PRODUCTION 1921 AND 1919

Woven goods (over 12 in. in width)—	1921 Pounds	1921 Sq. Yards	1921 Value	1919 Pounds	1919 Sq. Yards	1919 Value
United States	1,741,591,232	6,723,556,963	$956,731,860	1,814,949,042	6,317,397,984	$1,439,610,779
New England	627,743,501	2,829,541,249	444,435,688	715,564,501	2,824,924,188	703,159,102
Cotton-growing States	1,015,878,356	3,620,559,108	422,341,753	980,926,071	3,213,197,498	652,139,729
Sheetings—						
United States	381,352,105	1,600,998,979	158,216,314	330,303,642	1,368,946,386	220,089,704
New England	84,529,242	352,571,097	45,870,433	67,521,470	271,009,722	52,966,997
Cotton-growing States	281,622,684	1,195,389,693	103,793,846	250,807,263	1,047,305,819	157,789,101
Duck—						
United States	152,901,873	186,922,903	92,681,321	288,530,650	336,500,457	237,082,551
New England	35,595,729	38,037,703	33,780,960	97,624,410	101,339,887	101,621,950
Cotton-growing States	100,713,378	135,642,803	46,178,314	146,781,310	194,771,652	90,449,428
Tire fabrics, other than duck—						
United States	40,190,848	43,933,691	43,913,959	29,916,856	36,805,932	32,601,941
New England	26,434,303	28,531,450	29,949,930	26,956,199	33,332,040	29,232,022
Cotton-growing States	8,360,809	9,886,572	6,745,521	2,200,871	2,668,519	2,406,077
Drills—						
United States	70,999,578	191,715,280	22,031,291	117,627,118	314,822,109	73,253,640
New England	7,754,713	19,084,862	2,098,695	16,353,279	46,167,301	11,141,323
Cotton-growing States	61,765,729	167,180,948	19,509,563	100,863,600	267,415,815	61,181,621

United States Cotton Statistics

Census Bureau statistics show that cotton consumption during December totaled 461,560 bales of lint and 40,892 bales of linters, compared with 531,631 bales of lint and 48,069 of linters in November last year, and 529,342 of lint and 49,143 of linters in December, 1922.

Cotton on hand December 31 was held as follows:

In consuming establishments, 1,623,453 bales of lint and 112,949 of linters, compared with 1,438,813 of lint and 95,851 of linters on November 30 last year, and 1,917,231 of lint and 123,219 of linters on December 31, 1922.

In public storage and at compresses, 3,526,164 bales of lint and 64,232 of linters, compared with 3,770,542 of lint and 43,669 of linters on November 30 last year, and 4,069,470 of lint and 38,445 of linters on December 31, 1922.

Imports during December totaled 35,601 bales, compared with 16,564 in November last year, and 68,547 in December, 1922.

Exports during December totaled 845,581 bales, including 11,660 bales of linters, compared with 770,002 including 5,097 of linters in November last year, and 607,853 including 2,445 of linters in December, 1922.

Cotton spindles active during December totaled 34,044,870, compared with 34,101,452 in November last year and 34,976,103 in December, 1922.

Cotton ginned prior to January 1 totaled 9,807,138 running bales, including 234,723 round bales counted as half bales, 18,639 bales of American-Egyptian, and 776 bales of Sea Island, compared with 9,597,330 running bales, including 166,072 round bales, 28,498 bales of American-Egyptian and 5,069 bales of Sea Island ginned to January 1, last year.

Metal Market Review

New York

Despite the fact that during 1923 there were more or less expected ups and downs in the metal markets, the general tendency toward normalcy was very evident. It is believed that the outlook for the various industries gives every promise of more stable conditions in the metal markets of 1924 than during the year previous.

ALUMINUM. During the last of 1923 the market was said to be absolutely bare of resale offerings, with only a few importers able to do business. It is interesting to compare the prices in January a year ago, which ranged between 22½ and 23 cents, with those of last month when quotations as given by importers were from 27½ to 28 cents a pound.

ANTIMONY. Prices for antimony began to advance rapidly during the latter part of last December, while consumption was evidently increasing. One reason for the unexpected demand was said to be that the makers of storage batteries were finding that the use of from 6 to 10 per cent of antimony in their lead plates was an advantage. During the last of January the usual quotation for spot antimony was 10½ to 11 cents a pound, duty paid.

COPPER. Copper prices have continued to lag, although some improvement became evident during the last of January, when all 12½-cent copper was said to have been cleaned up, while foreign demand for the metal was considerably better. Automotive consumption during 1923 of copper and brass products is said to have reached approximately 200,000,000 pounds. According to *The American Metal Market*, the heavier consumption of copper in the United States, at present averaging a little less than 119,000,000 pounds a month, should serve to encourage the producers.

LEAD. The statistical position of lead was strong throughout the past year, with the demand continuing good for the early part of 1924, especially for February and March. January lead was said to have been practically impossible to obtain. Government figures placed the total mine production in 1923 of all kinds of lead at 534,000 short tons as compared with 476,849 in 1922.

NICKEL. Quotations for spot and ingot nickel are unchanged at 29 to 32 cents a pound, with electrolytic nickel held at 32 cents by the leading producers. It is said that the demand for automotive nickel steels was to a large extent responsible for the slight improvements in the nickel market during 1923. The war surplus of nickel is now absorbed, while the world's refining capacity is slightly below its normal consumption, estimated at 2,000 tons.

STEEL. The steel industry is apparently preparing for another boom, the recent increase in demand for this metal having been underrated rather than overrated. A prominent representative of the industry stresses the fact that the year 1923 was one of the most prosperous in steel's history and states that in his opinion these favorable conditions will continue at least into the second quarter of 1924.

TIN. The tin market for the early part of the year continues strong and higher. The 1923 consumption for the United States of this metal was the largest in the history of the industry, the amount estimated at about 74,500 tons, an increase of about 8,000 tons over 1922, and of 6,300 tons over 1918, the previous high year.

ZINC. Sharp advances and better demand are the main features of the prime Western zinc market. According to the figures prepared by the Geological Survey, the 1923 production of primary zinc aggregated 487,000 tons, as against 354,277 tons in 1922, a gain of about 35 per cent. Consumption in 1923 was 427,000 tons, as compared with 373,094 tons the year before. This represents the highest consumption of any year except 1916, when it amounted to 459,317 tons.

Basic Metals

JANUARY 23, 1924

	Cents per pound		
Aluminum virgin, 98@99 per cent	27.50	@	28.00
Antimony, pound	10.50	@	10.62½
Copper-Lake, spot, pound	.12⅞	@	.13⅛
Electrolytic, spot	.12⅝	@	.12¾
Casting, refinery	12.50	@	...
Lead, spot, New York, pound	8.00	@	8.50
Lead, spot, East St. Louis	8.25	@	8.37½
Nickel, ingot, pound	.29	@	.32
Tin, spot	.50¼	@	...
Zinc, spot, New York	6.85	@	6.90
Zinc, spot, East St. Louis	6.50	@	6.55

Steel Wire

BASE PRICE[1] ON NO. 9 GAGE AND COARSER

	Cents per pound		
Bright basic	4.75	@	5.00
Annealed soft	4.75	@	5.00
Galvanized annealed	5.40	@	5.65
Coppered basic	5.40	@	5.65
Tinned soft Bessemer	6.40	@	6.65

[1]Regular extras for lighter gage.

VALUE AND VOLUME OF CRUDE RUBBER IMPORTS

Notwithstanding the excess of our imports over exports during the first half of 1923, statistics for the nine months' period show the latter in the lead, the total being well above the figures for exports in any pre-war year.

Unmanufactured cotton still occupies the first place in value in the list of American exports, while among fifty leading commodities imported, crude rubber stands third, with a value of $148,455,000. In a quantity comparison crude rubber shows a gain of 17.2 per cent over the nine months' period of 1922, or 551,579,000 pounds as compared with 470,587,000 pounds. Exports of automobile tires, January-September, 1923, were valued at $14,703,000, while the number, 1,238,000, as compared with 1,032,000 in the 1922 period represents a gain of 19.9 per cent. The value of crude rubber importations during the first three quarters of 1923 as compared with those of the year previous shows an advance of 105 per cent.

The Market for Chemicals and Compounding Ingredients

New York

RECENT reductions in zinc oxide and lithopone prices have resulted in a generally improved demand for these materials outside the rubber trade. In all lines demand is reported fully up to the season. Purchases are mostly for current needs indicated by the fact that the call is all for prompt delivery. Present prices are expected to hold till after the spring season. They are but little if any higher than one year ago.

ANILINE. Stocks remain ample and demand moderate and steady at competitive prices.

ASBESTINE. This material has long been a standard filler in the mechanical rubber goods trade and is in steady demand for use in heat resisting goods such as steam hose, hot water valves, etc. There is said to be an inclination to raise prices.

BARYTES. About the middle of the month the market became unsteady owing to a reduction of $2.00 a ton, buyers holding off in anticipation of further price decline.

BENZOL. The year opened with stocks moderate, production seasonal, business less active and prices firm.

BLANC FIXE. This material enters the rubber trade as a refined barytes, possessing brilliancy of color and extremely fine particle size, which aids its value for technical uses.

CARBON BLACK. The high prices of last year passed with the completion of numerous new producing plants, some of which have placed their output at figures said to be close to cost of manufacture. Black, in bulk, f. o. b. producing works, was quoted in New York at 7 to 9 cents. Record breaking demand is looked for from the tire trade this year, as increasing rubber interest is noted, with estimated output of 45,000,000 tires for 1924.

CLAY. Prices have held steady for a long period. Appreciation of the value of clay as a reinforcing material and abrasive resistant has been rapidly extending in the rubber trade to the advantage of the manufacturer and the ultimate user of the goods.

LITHARGE. The litharge trade has been dull and routine. About the middle of the month the price advanced ¼ of a cent without appreciably affecting the demand. This advance was expected and all lead pigments were included.

LITHOPONE. Lithopone producers operated at capacity last year and a fair share of the output was used in the rubber trade. Lithopone for rubber work is now in good seasonal demand with prospect for much greater activity in the near future.

SOLVENT NAPHTHA. Supplies continue moderate and prices firm. Upward revision of prices has not taken place as expected a month ago.

SULPHUR. Values remained unchanged. Business was routine and seasonal with the rubber industry.

TALC. The year's consumption of talc was unusually heavy. Prices remain unchanged.

WHITING. The several grades of foreign and domestic whiting constitute one of the leading items of tonnage entering the rubber industry, moving continually in seasonal volume at steady prices.

ZINC OXIDE. With the opening of the year improvement in orders was noted for future deliveries. Tire makers are showing more interest in supplies and makers of oxide look for record breaking business from the tire trade in 1924.

New York Quotations

January 26, 1924

Accelerators, Inorganic

Lead, carbonate	lb.	$0.09½	@
Lead, red	lb.	.11½	@
sublimed blue	lb.	.09	@
sublimed white	lb.	.09	@
Lime, flour	lb.	.02½	@
R. M. hydrated	ton	25.00	@
superfine	lb.	.01½	@ .02
Litharge, domestic	lb.	.10¾	@ *.10½
imported	lb.	*.17	@
Magnesia, carbonate, light	lb.	.07½	@ .11
calcined, light (bbls.)	lb.	.23	@ .24
calcined, ex. light (bbls.)	lb.	.40	@
calcined, md. light (bbls.)	lb.	.15	@
calcined, heavy (bbls.)	lb.	.04½	@ .05¾
Orange mineral A.A.A.	lb.	.14½	@
Rubber lead	lb.	.10	@

Accelerators, Organic

A-7	lb.	.75	@
A-19	lb.	.85	@
Accelemal	lb.	.35	@
Accelerene (f. o. b. English port)	lb.	13d.	@
Aldehyde ammonia powder	lb.	.95	@
Aniline (f. o. b.) factory	lb.	.16½	@ .17½
sulphate	lb.	.33	@ .35
Cryline	lb.	.60	@
Diphenyl diamino carbazol	lb.	.40	@
Diphenylguanidine	lb.	1.10	@ 1.15
Ethylidene aniline	lb.	.70	@ .75
Excellerex	lb.	.48	@ .50
Formaldehyde aniline	lb.	.47½	@
H. R.	lb.	1.40	@ 1.50
Hexamethylene tetramine	lb.	.85	@
Lead oleate (bbls.)	lb.	.15	@
Methylene aniline	lb.	.40	@
No. 999	lb.	.15	@
Paraldehyde	lb.	.17	@ .19
Para-nitros-dimethyl aniline	lb.	.35	@
Paraphenylene diamine	lb.	1.35	@ 1.40

*Nominal.

Quinodine

Quinodine	lb.	$0.55	@
Super-sulphur, No. 1	lb.	.50	@ .60
No. 2	lb.	.25	@ .35
Super-X	lb.	.30	@
Tuads (Tetramethyl thiuram-disulphide)	lb.	6.00	@
Thiocarbanilide	lb.	.26½	@ .35
Triphenylguanidine	lb.	.80	@
Vul-Ko-Cene	lb.	.35	@

Acids

Acetic 28% (bbls.)	cwt.	3.88	@
glacial (carboys)	lb.	.16	@
Cresylic (95% straw color)	gal.	.73	@ .85
(95 dark)	gal.	.68	@ .80
Sulphuric, 66 degrees	lb.	.02	@

Alkalies

Caustic soda	cwt.	3.10	@ 3.80
flake, 76% (factory)	cwt.	3.60	@ 3.85
solid, 76% (factory)	cwt.	3.15	@

Colors

BLACK

Bone	lb.	.07	@ .08
Carbon black	lb.	.07½	@ .15
pressed	lb.	.08	@ .15
Drop	lb.	.07	@ .10
Gritless black	lb.	.40	@
Ivory black	lb.	.15	@ .45
Lampblack	lb.	.12	@ .16
Micronex	lb.	.08	@ .15
Shawinigan	lb.	.17	@ .18

BLUE

Cobalt	lb.	.21	@ .26
Gritless blue	lb.	3.50	@
Prussian	lb.	.43	@ .45
Ultramarine	lb.	.08	@ .35
T. K.	lb.	.25	@ .30

BROWN

Iron oxide	lb.	.04½	@ .05
Sienna, Italian	lb.	.05	@ .06
Umber, Turkey	lb.	.05½	@ .06½

GREEN

Chrome, light	lb.	$0.28	@ $0.31
medium	lb.	.30	@ .35
dark	lb.	.32	@ .43
commercial	lb.	.12	@
tile	lb.	.13	@ .15
Gritless green	lb.	3.50	@
Oxide of chromium	lb.	.36	@
T. K.	lb.	.45	@

RED

Antimony, golden	lb.	.19	@ .22
golden T. K.	lb.	.18	@ .23
golden R.M.P. No. 7	lb.	.20	@
golden, 15/17% free	lb.	.18	@ .20
golden, No. 1	lb.	.30	@
golden, No. 2	lb.	.20	@
Antimony, crimson	lb.	.45	@
crimson T. K.	lb.	.44	@ .49
crimson, 15/17% free	lb.	.38	@ .40
crimson, R.M.P. No. 3	lb.	.50	@
crimson F.	lb.	.35	@ .45
Tideco, golden	lb.	.22	@ .52
Crimson	lb.	.22	@ .52
7-A	lb.	.35	@
Golden pentasulphide T. K.	lb.	.32	@ .35
Vermilion, 5% F. S.	lb.	.65	@
Vermilion 15/17% F.S.	lb.	.50	@
T. K.	lb.	1.20	@ 1.25
Arsenic-sulphide, red	lb.	.14½	@
Gritless red (four shades)	lb.	3.50	@
purple	lb.	2.50	@
Indian maroon, English	lb.	.11	@ .13
Iron oxide, domestic	lb.	.08½	@ .12
English	lb.	.12	@ .14
Indian	lb.	.11	@ .12
pure bright	lb.	.12	@ .14
reduced	lb.	.09	@ .10½
Spanish	lb.	.03	@ .04
Venetian	lb.	.02½	@ .06
Oximony	lb.	.16	@
Pará toner	lb.	1.00	@ 1.10
Toluidine toner	lb.	2.10	@ 2.25
Vermilion, English	lb.	1.28	@ 1.30

Colors—*Continued*

WHITE

Albalith	lb.	$0.06⅞ @	$0.07⅛
Aluminum bronze	lb.	.55 @	.60
Lithopone, Sterling	lb.	.06¾ @	.07
Azo	lb.	.06⅜ @	.06¾
R. S. L.	lb.	.07 @	
Red Seal, imported	lb.	.07¼ @	.07½
Titanium oxide T. O. Pigment L. H. B.	lb.	.15½ @	.16¼
Zinc oxide:			
AAA, lead free	lb.	.08 @	.08¼
French process, Florence brand			
Green seal	lb.	.11 @	.11¾
Red seal	lb.	.10 @	.10¼
U. S. P.	lb.	.16 @	.18
White seal	lb.	.12 @	.12¾
Horse Head brands			
Selected	lb.	.08⅜ @	.08⅞
Special	lb.	.08⅜ @	.08⅞
XX red	lb.	.08⅛ @	.08⅜
Leaded brands			
Lehigh	lb.	.07¼ @	.07½
Standard	lb.	.07¼ @	.07½
Sterling	lb	.07¼ @	.07½
Superior	lb.	.07¼ @	.07½
Palmerton process			
Kadox, black	lb.	.10¾ @	.11
blue	lb.	.10½ @	.10¾
red	lb.	.10¾ @	.10½
Snow white	lb.	.13 @	.16
Azo (factory):			
ZZZ (lead free)	lb.	.08 @	.08¼
ZZ (—5% leaded)	lb.	.07⅛ @	.07⅜
Z (8.10% leaded)	lb.	.07⅛ @	.07⅜

YELLOW

Arsenic	lb.	.75 @	.85
Chrome	lb.	.17½ @	.18
Gritless yellow	lb.	3.50 @	
India rubber	lb.	.75 @	
Ochre, domestic	lb.	.02 @	.02½
imported	lb.	.03 @	.03½

Compounding Ingredients

Aluminum flake (carloads)	ton	29.00 @	
filler	ton	23.00 @	
hydrate, light	lb.	.18 @	.20
Ammonia carbonate	lb.	.09¼ @	.10½
Asbestine	ton	20.00 @	25.00
Aluminum silicate	ton	23.00 @	25.00
Barium, carbonate, precip.	ton	85.00 @	90.00
dust	lb.	.05 @	.06
Barytes, imported	ton	60.00 @	
pure white C. L.	ton	23.90 @	
off color	ton	20.00 @	
uniform floated	ton	23.90 @	
water ground and floated	ton	23.00 @	26.00
Basofor	lb.	.04¼ @	
Blanc fixe	lb.	.04 @	.04¼
Carrara filler (factory)	lb.	.01¾ @	.02½
Chalk, precip. extra light	lb.	.04¼ @	.05
heavy (f.o.b. factory)	lb.	.03¼ @	.04
China clay, Dixie	ton	22.00 @	35.00
Blue ribbon (carloads)	ton	14.00 @	
Blue Ridge	ton	12.00 @	26.00
L. H. B. (factory)	ton	10.00 @	25.00
Tideco (factory)	ton	10.00 @	
Cotton flock, black	lb.	.11 @	.12
light-colored	lb.	.12 @	.14
white	lb.	.14½ @	.23
Cotton linters clean mill-run	lb.	.07½ @	
Fossil flour (powdered)	ton	60.00 @	
(bolted)	ton	60.00 @	

* Nominal.

Chemical Market—*Continued*

New York Quotations

January 26, 1924

Glue, high grade	lb.	$0.30 @	$0.40
medium	lb.	.20 @	.26
low grade	lb.	.15 @	.18
Graphite, flake	lb.	.06½ @	.12
amorphous	lb.	@	
Infusorial earth (powd.)	ton	60.00 @	
(bolted)	ton	65.00 @	
Lime (bolted)	lb.	.02 @	
Mica, amber	lb.	.05 @	
powdered	lb.	.15 @	
white	lb.	.06 @	
Pumice stone, powdered	lb.	.03 @	.05
Rotten st., powd. (bbls.)	lb.	.02½ @	.04½
Slate flour (factory)	ton	9.00 @	20.00
Soap bark, cut	lb.	.10 @	.11
Soapstone, powdered, gray	ton	12.00 @	20.00
Sodium bicarbonate (bbls.)	lb.	.02¼ @	
Starch, powd. corn (bags)	cwt.	3.07 @	3.17
(bbls.)	cwt.	3.34 @	3.44
Talc, soapstone	ton	10.00 @	25.00
Terra blanche	ton	25.00 @	30.00
Whiting, Alba	cwt.	@	
chalk, L. H. B.	ton	16.50 @	25.00
Whiting, commercial	cwt.	.90 @	1.00
English	cwt.	1.50 @	1.75
gilders (bolted)	cwt.	1.10 @	
K. T.	ton	@	
Perfection	ton	22.50 @	25.00
Quaker	ton	13.00 @	22.00
Superfine, L. H. B.	ton	12.50 @	22.50
Sussex	ton	8.00 @	
W. T.	ton	20.00 @	
York	ton	12.00 @	
Wood pulp, XXX	ton	35.00 @	
X (f. o. b. factory)	ton	25.00 @	

Mineral Rubber

Genasco (factory)	ton	50.00 @	52.00
Gilsonite	ton	65.00 @	
Hard hydrocarbon	ton	31.00 @	50.00
Liquid rubber	lb.	.11 @	
Ohmlac Kapak, K-R	ton	50.00 @	60.00
K-4	ton	175.00 @	
Parra M. R. flux	lb	.06 @	.07
Soft hydrocarbon	ton	30.00 @	50.00
320/340 M. P. hydrocarbon	ton	45.00 @	50.00
300/310 M. P. hydrocarbon	ton	40.00 @	45.00
Pioneer, M. R., solid (fac.)	ton	42.00 @	44.00
M. R. granular	ton	52.00 @	54.00
Robertson, M. R., solid	ton	35.00 @	75.00
M. R. granular (factory)	ton	42.00 @	80.00
Rubrax (factory)	ton	60.00 @	
Synpro, gran. M. R. (fac.)	ton	55.00 @	

Softeners

Avoilas compound	lb.	.13 @	
Castor, No. 1, U. S. P.	lb.	.15 @	
No. 3, U. S. P.	lb.	.14¾ @	
Corn	lb.	.12½ @	
Cotton	lb.	.12½ @	
Cycline	gal.	.38 @	
Glycerine	lb.	.16½ @	.17
Linseed, raw	gal.	.96 @	
Palm lagos	lb.	.09¾ @	
oil clarified L. H. B.	lb.	.09½ @	.10
Palm, niger	lb.	.09¼ @	
Peanut, crude	lb.	.14 @	
refined	lb.	.16 @	
Petrolatum, standard	lb.	.06 @	.08
Petrolatum, sticky	lb.	.08 @	.10
Pine, steam distilled	gal.	.60 @	.63
Rapeseed, refined	gal.	.83 @	
blown	gal.	1.00 @	
Rosin	gal.	$0.47 @	$0.50
Synpro	gal.	@	
Soya bean	lb.	.12½ @	
Tar	gal.	.26 @	.28
Woburn	lb.	.04½ @	
Woolgrease (Lanolin)	lb.	.12½ @	.13

Resins and Pitches

Tar, pine, retort	bbl.	11.00 @	11.75
kiln	bbl.	11.75 @	12.00
Pitch, Burgundy	lb.	.05 @	
coal tar	lb.	.01½ @	
Fluxol hardwood	lb.	.04 @	
pine tar	lb.	.03 @	
ponto	lb.	.07½ @	
Rosin, K (bbl.)	280 lbs.	6.75 @	
strained (bbl.)	280 lbs.	6.45 @	
Shellac, fine orange	lb.	.75 @	.90
substitute	gal.	2.00 @	

Solvents

Acetone (98.99% drums [6.62 lbs. per gal.])	lb.	.25 @	.25½
Benzol (90% drums [7.21 lbs. per gal.])	gal.	.26 @	.31
pure (drums)	gal.	.42 @	
Carbon bisulphide (dms. [10.81 lbs. per gal.])	lb.	.06½ @	.07½
tetrachloride (drums, [13.28 lbs. per gal.])	lb.	.09½ @	.10½
Hartol No. 303			
Tankcars	gal.	.20 @	
Drums, carlots	gal.	.23 @	
Drums, less carlots	gal.	.26 @	
Motor gasoline (steel bbls.)	gal.	.17½ @	
Naphtha, V. M. & P.	gal.	.16½ @	
solvent (drums extra)	gal.	.27 @	
68° grav.	gal.	.17½ @	
70° grav.	gal.	.18½ @	
71° grav.	gal.	.19½ @	
Cymene (factory)	gal.	2.50 @	3.00
Toluol, pure (7.21 lbs. per gal.)	gal.	@	
Turpentine, spirits	gal.	1.04 @	
wood, steam distilled	gal.	.95 @	

Substitutes

Black	lb.	.08 @	.14
Brown	lb.	.10 @	.15
White	lb.	.09 @	.16
Brown factice	lb.	.09 @	.15½
White factice	lb.	.09 @	.15½
T. K. various	lb.	.12 @	.15

Vulcanizing Ingredients

Black hypo, T. K., S. F.	lb.	.18 @	
13% F. S., L. H. B.	lb.	.20 @	
Sulphur chloride	lb.	.08 @	.13½
Sulphur, Bergenport brand, 100% pure (bbls.)	cwt.	2.60 @	2.90
(bags)	cwt.	2.35 @	2.65
Sulphur, Bklyn bd. (bbls.)	cwt.	2.75 @	3.30
superfine com. (bgs.)	cwt.	2.00 @	2.50
(bbls.)	cwt.	2.40 @	2.90
Rubber makers	lb.	.03¼ @	.03¾

(See also Colors—Antimony)

Waxes

Wax, beeswax, white, com	lb.	.40 @	.45
ceresine, white	lb.	.10 @	.12
carnauba	lb.	.19 @	
montan	lb.	.06 @	.06½
ozokerite, black	lb.	.18 @	.24
green	lb.	.27 @	.28
sweet wax	lb.	.12 @	
Paraffin			
122/124 white crude scale	lb.	.04¼ @	
124/126 white crude scale	lb.	.04½ @	
120/122 fully refined	lb.	.04½ @	
125/127 fully refined	lb.	.04¾ @	

MANUFACTURERS OF "MICRONEX" ENLARGE RESEARCH DEPARTMENT

The increasing demand for "Micronex," a superior grade of carbon black, as manufactured by the Binney & Smith Co., 41 East 42nd street, New York, N. Y., has resulted several times in recent years in the enlargement of that company's manufacturing facilities.

The latest advance has been the further expansion of the company's research and development department, the new work being in charge of Donald F. Cranor. As chief chemist and assistant superintendent Mr. Cranor has been associated since 1912 with the Lee Tire & Rubber Co., while during 1923 he was technical superintendent of both the Lee organization and the Republic Rubber Corporation.

The proposed research work will be conducted along strictly practical lines as applicable to modern factory practice, and it is believed will be of benefit to the rubber industry in general.

SYNTHETIC CHEMICAL ASSOCIATION ELECTS OFFICERS

At the recent annual meeting held in New York, N. Y., by the Synthetic Organic Chemical Manufacturers Association of the United States, the following officers were elected for the ensuing year: Charles H. Herty, president and ex-officio member of board of governors; F. P. Summers, treasurer.

TAN KAH KEE OPENS SHANGHAI BRANCH

The Singapore Chinese rubber manufacturer, Tan Kah Kee, has opened a branch distributing office and salesroom at Shanghai for rubber soles, heels, rubber-soled canvas shoes, rubber specialties and toys from his Singapore factory. Some of the principal articles sold are ricksha tires, trouser belts, balls, and tubing. The full length rubber soles are vulcanized, gray in color, very soft and flexible, and corrugated. These soles are quoted at $4.80 Mexican per dozen pairs and the heels at $2.30 Mexican per dozen pairs.

Crude Rubber Arrivals at New York as Reported by Importers

Parás and Caucho

	Fine Pará	Medium and Manáos.	Coarse	Caucho	Cametá
NOVEMBER 17. By "Bonheur,"	Cases	Cases	Cases	Cases	Cases
H. A. Astlett & Co.	308	9	55	62	.....
Paul Bertuch	230	.....	.....	70	.....
Poel & Kelly, Inc.	95*	.....	.....	.....	.....
DECEMBER 24. By "Stephen," Manáos.					
H. A. Astlett & Co.	77	20	62	28	.....
Paul Bertuch	5	.....	.....	36	.....
Poel & Kelly, Inc.	952*	.....	.....	.....	.....
General Rubber Co.	77	4	2	177	.....
L. Littlejohn & Co., Inc.	60	.....	.....	.....	.....
DECEMBER 31. By "Virgil," Manáos.					
H. A. Astlett & Co.	.....	.....	20	.....	.....
Paul Bertuch	21	.....	.....	.....	.....
Poel & Kelly, Inc.	116*	.....	.....	.....	.....

*Includes fine, medium and coarse.

Imports of Crude Rubber Into the United States By Customs Districts

	November, 1922		November, 1923	
	Pounds	Value	Pounds	Value
Massachusetts	768,872	$99,031	911,883	$248,167
New York	50,863,548	7,358,860	33,352,529	8,837,076
Maryland	448,000	61,146	.....	.....
New Orleans	145	30	.....	.....
Los Angeles	1,663,472	215,203	455,135	125,584
San Francisco	305,083	50,575	45,080	11,305
Oregon	11,200	1,659	.....	.....
Michigan	151,267	35,977	.....	.....
Colorado	132,072	15,370	58,240	13,946
Totals	54,343,659	$7,837,851	34,822,867	$9,236,078

Plantations

DECEMBER 16. By "Maryland," London.
Vernon Metal & Produce Co., Inc.. 391 cases

DECEMBER 17. By "Bonheur," Para.
Poel & Kelly, Inc. 179 casks

DECEMBER 19. By "Nordbo," Hamburg.
Baird Rubber & Trading Co. 149 cases

DECEMBER 19. By "President Adams," Singapore.
H. A. Astlett & Co. 420 cases
F. R. Henderson & Co., Inc. 122 cases

DECEMBER 19. By "West Mohamet," Far East.
H. A. Astlett & Co. 50 cases
General Rubber Co. 3,280 cases
F. R. Henderson & Co., Inc. 980 cases
L. Littlejohn & Co., Inc. 3,236 cases
Meyer & Brown, Inc. 2,342 cases
Poel & Kelly, Inc. 176,000 cases
Chas. T. Wilson & Co., Inc. 333 cases

DECEMBER 20. By "Esther Dollar."
Baird Rubber & Trading Co., Inc. 596 cases
F. R. Henderson & Co., Inc. 330 cases
Meyer & Brown, Inc. 877 cases
Wm. H. Stiles & Co. 100 cases
Chas. T. Wilson & Co., Inc. 50 cases
Chas. T. Wilson & Co., Inc. *85 cases

DECEMBER 20. By "Karonga," Singapore.
H. A. Astlett & Co. 264 cases
Baird Rubber & Trading Co. 820 cases
F. R. Henderson 2,000 cases
Hood Rubber Co. *127 pkgs.
Meyer & Brown, Inc. 4,567 cases
H. Muehlstein & Co., Inc. 1,183 cases
Poel & Kelly, Inc. 823,295 cases
Fred Stern & Co., Inc. 1,067 cases
Wm. H. Stiles & Co. 1,600 cases
Vernon Metal & Produce Co., Inc. 605 cases
Chas. T. Wilson & Co., Inc. 228 cases
Chas. T. Wilson & Co., Inc. *127 cases

DECEMBER 20. By "West Kun," Bahia.
Poel & Kelly, Inc. 84 casks

DECEMBER 22. By "Dorelain," Rotterdam.
H. A. Astlett & Co. 1,907 cases
Meyer & Brown, Inc. 366 cases

DECEMBER 22. By "Nagata Maru," Far East.
L. Littiejohn & Co., Inc. 1,070 cases
Meyer & Brown, Inc. 484 cases
Poel & Kelly, Inc. 67,300 cases

DECEMBER 22. By "Sahale," Rotterdam.
Fred Stern & Co., Inc. 97 cases

DECEMBER 22. By "Vasconia," London.
Meyer & Brown, Inc. 300 cases
Fred Stern & Co., Inc. *337 cases

DECEMBER 23. By "Verbania," London.
Meyer & Brown, Inc. 200 cases
Wm. H. Stiles & Co. 187 cases

DECEMBER 23. By "Niew Amsterdam," Europe.
L. Littlejohn & Co., Inc. 62 cases
Chas. T. Wilson & Co., Inc. 300 cases

DECEMBER 23. By "Scythia," Liverpool.
Poel & Kelly, Inc. 5 casks

DECEMBER 23. By "Sarcoxie," Bordeaux.
Poel & Kelly, Inc. 929 casks

DECEMBER 24. By "Alcinous," Singapore.
H. A. Astlett 858 cases
General Rubber Co. 750 cases
F. R. Henderson & Co., Inc. 1,084 cases
L. Littlejohn & Co., Inc. 10,065 cases
Meyer & Brown, Inc. 4,286 cases
Poel & Kelly, Inc. 665,514 cases
Fred Stern & Co., Inc. 847 cases
Wm. H. Stiles & Co. 470 cases
Vernon Metal & Produce Co., Inc. 1,324 cases
Chas. T. Wilson & Co., Inc. 1,074 cases

DECEMBER 24. By "Celtic," London.
Chas. T. Wilson & Co., Inc. 241 cases

DECEMBER 24. By "City of Eastbourne," Colombo.
H. A. Astlett & Co. 112 cases
L. Littlejohn & Co., Inc. 1,064 cases
Meyer & Brown, Inc. 659 cases
Poel & Kelly, Inc. 33,600 cases
Wm. H. Stiles & Co. 204 cases

DECEMBER 24. By "Stephen," Pará and Manáos.
Poel & Kelly, Inc. 952 casks

DECEMBER 26. By "President Monroe," London.
H. A. Astlett & Co. 53 cases

DECEMBER 26. By "Verbania," London.
H. A. Astlett & Co. 382 cases
L. Littlejohn & Co., Inc. 27 cases
Chas. T. Wilson & Co., Inc. 396 cases

DECEMBER 27. By "Chickahominy," London.
Meyer & Brown, Inc. 2,069 cases

DECEMBER 30. By "Grange Park," Colombo.
J. T. Johnstone & Co., Inc. 24,640 lbs.
L. Littlejohn & Co., Inc. 242 cases
H. Muehlstein & Co., Inc. 329 cases
Poel & Kelly, Inc. 168,000 cases
Chas. T. Wilson & Co., Inc. 321 cases

DECEMBER 30. By "Nevisian," London.
H. A. Astlett & Co. 59 cases
Paul Bertuch 129 cases
L. Littlejohn & Co., Inc. 100 cases
Meyer & Brown, Inc. 802 cases
H. Muehlstein & Co., Inc. 286 cases
Fred Stern & Co., Inc. 40 cases
Chas. T. Wilson & Co., Inc. 53 cases

DECEMBER 31. By "Celtic Prince," Singapore.
H. A. Astlett & Co. 250 cases
Baird Rubber & Trading Co. 780 cases
General Rubber Co. 279 cases
F. R. Henderson & Co., Inc. 992 cases
Hood Rubber Co. *851 pkgs.
J. T. Johnstone & Co., Inc. 211,721 lbs.
L. Littlejohn & Co., Inc. 5,897 cases
Poel & Kelly, Inc. 462,924 cases
Fred Stern & Co., Inc. 363 cases
Wm. H. Stiles & Co. 578 cases
H. Muehlstein & Co., Inc. 683 cases
Meyer & Brown, Inc. 381 cases
Vernon Metal & Produce Co. 501 cases
Chas. T. Wilson & Co., Inc. 1,219 cases
Chas. T. Wilson & Co., Inc. *85 cases

DECEMBER 31. By "Virgil," Manáos.
Poel & Kelly, Inc. 116 casks

JANUARY 2. By "Gruotenlyk," Belewan.
J. T. Johnstone & Co., Inc. 49,280 lbs.

JANUARY 2. By "Woodfield," Colombo.
H. A. Astlett & Co. 224 cases
L. Littlejohn & Co., Inc. 574 cases

JANUARY 3. By "Port Caroline," Europe.
L. Littlejohn & Co., Inc. 316 cases
Poel & Kelly, Inc. 47 casks

JANUARY 6. By "Hagre Maru," Singapore.
Baird Rubber & Trading Co. 750 cases
Meyer & Brown, Inc. 400 cases

JANUARY 6. By "Kasenga," Colombo.
L. Littlejohn & Co., Inc. 224 cases
H. Muehlstein & Co., Inc. 1,388 cases
Chas. T. Wilson & Co., Inc. 165 cases

JANUARY 6. By "London Commerce," Europe.
L. Littlejohn & Co., Inc. 1,516 cases

JANUARY 7. By "City of Lahore," Singapore.
F. R. Henderson & Co., Inc. 140 cases
L. Littlejohn & Co., Inc. 2,050 cases
Meyer & Brown, Inc. 730 cases
Poel & Kelly, Inc. 190,400 cases
Fred Stern & Co., Inc. 241 cases
Chas. T. Wilson & Co., Inc. 172 cases

JANUARY 9. By "Banka," Batavia.
General Rubber Co. 6,768 cases
J. T. Johnstone & Co., Inc. 86,242 lbs.
L. Littlejohn & Co., Inc. 7,006 cases
Meyer & Brown, Inc. 1,087 cases
H. Muehlstein & Co., Inc. 843 cases
Poel & Kelly, Inc. 204,868 cases
Fred Stern & Co. 261 cases
Vernon Metal & Produce Co., Inc. 55 cases
Chas. T. Wilson & Co., Inc. 231 cases

JANUARY 10. By "Burgerdyk," Rotterdam.
H. Muehlstein & Co., Inc. *162 cases

JANUARY 10. By "Mississippi," London.
L. Littlejohn & Co., Inc. 1,096 cases
Meyer & Brown, Inc. 1,031 cases
Chas. T. Wilson & Co., Inc. 755 cases

JANUARY 10. By "President Van Buren," Europe.
L. Littlejohn & Co., Inc. 156 cases

JANUARY 12. By "Verentia," Europe.
L. Littlejohn & Co., Inc. 9,327 cases

JANUARY 15. By "Antonia," London.
L. Littlejohn & Co., Inc. 2,386 cases
Meyer & Brown, Inc. 311 cases

JANUARY 17. By "Kansas," Colombo.
J. T. Johnstone & Co., Inc. 123,700 lbs.
L. Littlejohn & Co., Inc. 1,498 cases
Meyer & Brown, Inc. 280 cases

JANUARY 18. By "President Polk," London.
Fred Stern & Co., Inc. 48 cases

JANUARY 18. By "Seucer," Singapore.
Fred Stern & Co., Inc. 1,303 cases

JANUARY 19. By "Quecer," Colombo.
Poel & Kelly, Inc. 539,104 cases

JANUARY 21. By "Selma City," Far East.
Poel & Kelly, Inc. 33,600 cases

*Arrived at Boston.

Africans

DECEMBER 23. By "Scythia," Liverpool.
Poel & Kelly, Inc. 3,292 casks

DECEMBER 23. By "Sarcoxie," Bordeaux.
Poel & Kelly, Inc. 55,525 casks

DECEMBER 26. By "Roussillon," Singapore.
Baird Rubber & Trading Co., Inc. 210 bags

JANUARY 3. By "Port Caroline," Liverpool.
Poel & Kelly, Inc. 29,167 casks

JANUARY 12. By "Welshman," Liverpool.
Fred Stern & Co. 220 bags

JANUARY 14. By "Olen," Bordeaux.
Baird Rubber & Trading Co., Inc. 362 pkgs.

Rubber Latex

DECEMBER 19. By "West Mohamet," Far East.
General Rubber Co. 227,500 lbs.

Balata

DECEMBER 15. By "Paria," Dutch Guiana.
Middleton & Co., Ltd. 43 bales

DECEMBER 23. By "Mayaro," British Guiana.
Middleton & Co., Ltd. 50 bales

JANUARY 3. By "Surinam," Dutch and French Guiana.
Middleton & Co., Ltd. 38 bales

Manicobas

DECEMBER 17. By "Bonheur," Pará.
Poel & Kelly, Inc. 22,400 casks

DECEMBER 20. By "West Kun," Bahia.
Poel & Kelly, Inc. 22,400 casks

Official India Rubber Statistics for the United States

Imports of Crude and Manufactured Rubber

	October, 1923		Ten Months Ended October, 1923	
	Pounds	Value	Pounds	Value
UNMANUFACTURED—*free*				
Crude rubber				
From France	82,313	$28,724	2,724,844	$758,967
Netherlands	203,297	60,363	5,141,737	1,462,135
Portugal	.....	.....	84,777	10,354
United Kingdom	136,820	50,240	61,612,073	19,768,211
Canada	.....	.....	40,844	12,569
Central America	435	87	63,040	13,331
Mexico	.....	.....	144,182	30,193
Brazil	679,628	206,447	21,549,156	4,853,774
Peru	11,896	5,766	1,402,919	308,880
Other South America	312,216	68,878	2,351,909	558,770
British East Indies	29,644,850	7,809,295	392,862,238	104,704,342
Dutch East Indies	8,048,095	2,131,306	94,083,054	24,259,924
Other countries	53,862	14,241	8,991,300	2,088,910
Totals	39,473,412	$10,375,347	591,052,073	$158,830,310
Balata	247,039	157,748	1,316,274	755,508
Jelutong (Pontianak)	789,928	65,827	9,331,679	784,890
Gutta Percha	284,466	58,617	1,836,561	340,991
Rubber Scrap	1,011,837	85,147	15,142,395	1,179,852
Totals, unmanufactured	41,806,682	$10,742,686	618,678,982	$161,891,551
Chicle ..... *dutiable*				
MANUFACTURED—*dutiable*				
Rubber belting	51,650	27,738	459,843	314,538
Other manufactures of and substitutes for rubber	.....	101,865	.....	780,424

Exports of Domestic Merchandise

	October, 1923		Ten Months Ended October, 1923	
	Pounds	Value	Pounds	Value
MANUFACTURED—				
India rubber				
Reclaimed	271,353	$27,679	3,936,330	$401,101
Scrap and old	856,370	39,216	11,839,981	531,311
Footwear				
Boots ..... *pairs*	38,951	90,795	316,730	763,353
Shoes ..... *pairs*	123,113	100,737	900,178	746,785
Canvas shoes with rubber soles ..... *pairs*	187,869	163,472	3,520,398	2,695,131
Druggists' rubber sundries	74,305	73,634	670,017	651,697
Hard rubber goods				
Battery jars and accessories	19,364	4,325	300,667	98,232
Other electrical supplies	8,011	4,778	289,743	95,648
Other hard rubber goods	20,105	23,084	400,555	339,944
Tires				
Pneumatic casings				
For automobiles	67,852	824,910	1,233,091	13,753,778
Others	2,655	8,693	68,772	256,452
Pneumatic tubes				
For automobiles	51,168	92,494	910,384	1,536,972
Others	3,022	2,396	49,369	45,115
Solid tires				
For automobiles and motor trucks	6,789	178,764	79,669	1,953,276
Others	82,507	20,296	761,532	183,898
All other tires	.....	.....	.....	.....
Tire repair materials	48,224	21,335	682,430	288,576
Belting	339,545	201,357	2,880,741	1,635,027
Hose	373,286	141,446	3,786,539	1,474,625
Packing	127,933	58,510	1,266,260	592,864
Soles and heels	154,164	50,035	1,628,232	578,481
Thread	62,836	63,215	755,360	771,809
Other rubber manufactures	447,749	281,498	4,816,604	2,769,763
Totals, manufactured	.....	$2,476,669	.....	$22,163,838

Exports of Foreign Merchandise

	October, 1923		Ten Months Ended October, 1923	
	Pounds	Value	Pounds	Value
UNMANUFACTURED				
India rubber	1,401,118	$381,279	16,472,804	$4,932,627
Balata	12,072	8,431	172,263	93,808
Jelutong (Pontianak)	.....	.....	.....	.....
Totals, unmanufactured	1,413,190	$389,710	16,645,067	$5,026,435
MANUFACTURED				
Gutta percha and india rubber	1,115	1,255	135,165	46,186
India rubber substitutes	1,479	192	4,426	690
Totals, manufactured	2,594	$1,447	139,591	$46,876

[1]Details of exports of domestic merchandise by countries during October, 1923, appeared on pages 278-281 of our January, 1924, issue.

Imports of Crude and Manufactured Rubber

	November, 1923		Eleven Months Ended November, 1923	
	Pounds	Value	Pounds	Value
UNMANUFACTURED—*free*				
Crude rubber				
From France	.....	.....	2,724,844	$758,967
Netherlands	937,994	$248,408	6,079,731	1,710,543
Portugal	.....	.....	84,777	10,354
United Kingdom	523,800	148,402	62,135,873	19,916,613
Canada	.....	.....	40,844	12,569
Central America	850	86	63,890	13,417
Mexico	.....	.....	144,182	30,193
Brazil	1,618,925	332,147	23,168,081	5,185,871
Peru	14,898	3,953	1,417,817	312,833
Other So. America	509,293	123,751	2,861,202	682,521
British E. Indies	25,070,160	6,832,414	417,932,398	111,536,756
Dutch E. Indies	5,825,610	1,481,644	99,908,664	25,741,568
Other countries	321,337	65,273	9,312,637	2,154,183
Totals	34,822,867	$9,236,078	625,874,940	$168,066,388
Belata	87,883	46,087	1,404,157	801,595
Jelutong (Pontianak)	428,264	31,493	9,759,943	816,383
Gutta percha	24,817	5,732	1,861,378	346,723
Rubber scrap	619,853	50,434	15,762,248	1,230,286
Totals unmanufactured	36,057,126	$9,475,022	655,195,951	$172,461,535
Chicle ..... *dutiable*	465,764	$223,606	7,201,488	$3,546,742
MANUFACTURED—*dutiable*				
Rubber belting	73,442	$29,509	533,285	$344,047
Other manufactures of, and substitutes for rubber	.....	75,689	.....	$856,113

Exports of Domestic Merchandise

	November, 1923		Eleven Months Ended November, 1923	
	Pounds	Value	Pounds	Value
MANUFACTURED				
India rubber				
Reclaimed	208,879	$23,420	4,145,209	$424,521
Scrap and old	1,052,234	50,726	12,892,215	582,037
Footwear				
Boots ..... *pairs*	37,690	97,533	354,420	860,886
Shoes ..... *pairs*	105,940	89,358	1,006,118	836,143
Canvas shoes with rubber soles ..... *pairs*	126,704	107,175	3,647,102	2,802,306
Druggists' rubber sundries	67,997	68,578	738,014	720,275
Hard rubber goods				
Battery jars and accessories	28,815	7,563	329,482	105,795
Other electrical supplies	8,519	3,647	298,260	99,295
Other hard rubber goods	35,178	42,464	435,733	382,408
Tires				
Pneumatic casings				
For automobiles	68,453	819,927	1,301,544	14,573,705
Others	2,200	9,924	70,972	266,376
Pneumatic tubes				
For automobiles	51,368	112,206	961,752	1,649,178
Others	4,189	4,309	53,558	49,424
Solid tires				
For automobiles and motor trucks	11,197	272,763	90,866	2,226,039
Others	102,373	27,546	863,905	211,444
All other tires	.....	.....	.....	.....
Tire repair materials	58,312	29,360	740,748	317,936
Belting	299,831	177,613	3,180,572	1,812,640
Hose	360,193	133,665	4,146,732	1,608,290
Packing	175,647	79,502	1,441,907	672,366
Soles and heels	128,777	48,439	1,757,009	626,920
Thread	101,619	104,394	856,979	876,203
Other rubber manufactures	440,570	258,537	5,257,194	3,028,311
Totals, manufactured	.....	$2,568,649	.....	$34,732,498

Exports of Foreign Merchandise

	November, 1923		Eleven Months Ended November, 1923	
	Pounds	Value	Pounds	Value
UNMANUFACTURED				
India rubber	1,730,635	$355,454	18,307,462	$5,312,623
Balata	36,826	19,960	223,517	124,988
Jelutong (Pontianak)	.....	.....	.....	.....
Totals, unmanufactured	1,767,461	$375,414	18,530,979	$5,437,611
MANUFACTURED				
Gutta percha and india rubber	2,514	$1,919	19,208	$12,332
India rubber substitutes	90	63	4,516	753
Totals, manufactured	2,604	$1,982	23,724	$13,085

Details of exports of domestic merchandise by countries during November, 1923, appeared on pages 352-355 of our February, 1924, issue.

Exports of India Rubber Manufactures from the

EXPORTED TO—	Belting Value	Hose Value	Packing Value	Thread Value	Boots Pairs	Boots Value	Shoes Pairs	Shoes Value	Canvas Shoes with Rubber Soles Pairs	Canvas Shoes with Rubber Soles Value	Soles and Heels Value	Leather Cloth or Artificial Leather Value	Waterproofed Auto Cloth Value
EUROPE													
Austria	.....	.....	.....	.....	.....	.....	1,300	$1,200	.....	.....	.....	$39	$3,045	$1,044
Belgium	$235	.....	$8	$1,456	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bulgaria	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	123	2,665	134
Denmark	682	$115	292	.....	3,432	$7,296	7,424	9,145	.....	.....	.....	.....	.....	.....
Esthonia	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	212	.....
Finland	181	.....	167	.....	.....	.....	.....	.....	.....	.....	.....	.....	77,890	1,018
France	3,793	98	1,873	24,825	.....	.....	406	400	.....	.....	.....	.....	545	193
Germany	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gibraltar	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Greece	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Iceland and Faroe Islands	.....	.....	.....	.....	954	3,693	2,203	6,581	.....	.....	.....	.....	2,267	371
Italy	129	.....	.....	5,702	270	895	935	789	.....	.....	.....	.....	.....	.....
Latvia	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lithuania	400	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Malta, Gozo, and Cyprus Islands	86	.....	.....	.....	.....	.....	.....	.....	.....	.....	252	394	.....	.....
Netherlands	.....	971	.....	.....	382	2,144	15,566	13,055	912	$618	55	1,367	.....	.....
Norway	1,037	612	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Poland and Danzig	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	230	.....	.....	.....
Portugal	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rumania	.....	143	.....	.....	.....	.....	.....	.....	1,288	1,113	24	6,571	953
Spain	44	49	.....	6,145	.....	.....	.....	.....	.....	.....	3,314	8,115	949
Sweden	5,556	907	17	300	1,423	3,075	428	460	.....	.....	.....	253	.....
Switzerland	.....	.....	.....	.....	.....	.....	2,343	1,237	.....	.....	.....	.....	.....
Turkey in Europe	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
England	5,723	21,402	4,542	57,220	8,219	24,719	10,100	4,845	1,404	2,072	3,646	12,338	15,604
Scotland	.....	1,079	104	.....	1,378	1,864	240	124	144	82	.....	6,855	.....
Ireland	880	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Yugoslavia, Albania, etc.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS, EUROPE	$18,746	$23,376	$7,015	$95,648	16,558	$43,086	40,945	$37,836	3,748	$3,885	$7,683	$122,517	$20,266
NORTH AMERICA													
Canada—Maritime Provinces	$550	$109	$14	.....	1,995	$6,820	650	$792	240	$136	.....	$20	.....
Quebec and Ontario	6,575	5,680	4,036	$3,398	30	113	2,396	5,162	78	69	$843	16,570	$3,983
Prairie Provinces	511	52	24	.....	.....	.....	94	226	.....	.....	.....	284	.....
Br. Columbia and Yukon	566	63	.....	.....	773	2,824	320	216	.....	.....	.....	78	402
British Honduras	20	.....	.....	.....	.....	.....	.....	.....	47	89	.....	.....	.....
Costa Rica	134	573	.....	.....	.....	.....	.....	.....	.....	.....	844	205	62
Guatemala	859	1,176	226	.....	.....	.....	264	230	1,308	1,041	599	220	.....
Honduras	282	402	75	.....	.....	.....	.....	.....	1,670	1,969	2,076	.....	.....
Nicaragua	215	270	145	.....	.....	.....	24	21	712	716	411	.....	.....
Panama	.....	3,497	783	.....	30	98	48	40	2,393	2,344	.....	1,806	700
Salvador	.....	2,966	59	.....	.....	.....	.....	.....	312	278	3,595	.....	.....
Mexico	32,837	18,315	11,991	1,273	97	321	535	519	39,155	35,832	13,121	6,161	1,776
Miquelon and St. Pierre Island	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Newfoundland and Labrador	863	794	.....	.....	4,643	11,695	8,961	5,985	48	43	1,322	23	.....
Bermuda	37	12	.....	.....	78	142	21	16	632	670	315	.....	100
Barbados	.....	.....	.....	.....	.....	.....	.....	.....	312	265	.....	184	146
Jamaica	.....	208	.....	.....	.....	.....	.....	.....	6,754	5,007	.....	382	113
Trinidad and Tobago	401	1,806	960	65	.....	.....	1,318	822	1,129	809	107	.....	65
Other British West Indies	406	82	14	.....	.....	.....	18	10	2,671	2,265	.....	23	.....
Cuba	7,663	11,097	12,465	.....	36	104	384	357	15,175	10,811	4,607	7,363	1,879
Dominican Republic	.....	254	619	.....	.....	.....	864	726	5,479	4,014	352	207	.....
Dutch West Indies	.....	31	.....	.....	.....	.....	360	236	6,153	4,171	177	.....	35
Haiti	48	122	113	.....	.....	.....	96	84	1,137	1,444	154	.....	.....
Virgin Islands of United States	.....	.....	.....	.....	.....	.....	36	41	424	594	.....	.....	.....
TOTALS, NORTH AMERICA	$51,967	$47,509	$31,524	$4,736	7,682	$22,117	16,389	$15,483	85,829	$72,567	$28,523	$33,526	$9,261
SOUTH AMERICA													
Argentina	$3,629	$7,240	$871	.....	972	$4,299	.....	.....	19,200	$14,484	$1,838	$10,334	$13,350
Bolivia	.....	330	.....	.....	.....	.....	.....	.....	.....	.....	.....	255	.....
Brazil	8,462	2,931	1,581	.....	42	131	250	$166	.....	.....	.....	1,509	1,358
Chile	16,818	3,066	968	.....	450	2,807	.....	.....	1,152	918	7	.....	3,427
Colombia	1,555	2,359	1,009	.....	.....	.....	414	458	1,707	1,188	3,069	489	276
Ecuador	.....	341	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
British Guiana	996	10	39	.....	.....	.....	.....	.....	.....	.....	.....	.....	238
Dutch Guiana	.....	5	.....	.....	.....	.....	.....	.....	283	212	89	.....	.....
Paraguay	1,403	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Peru	1,798	3,083	2,740	.....	54	190	.....	.....	36	41	302	342	.....
Uruguay	.....	296	62	.....	.....	.....	132	92	3,223	2,728	486	4,009	724
Venezuela	1,581	1,394	21	.....	.....	.....	556	398	.....	.....	1,920	2,237	57
TOTALS, SOUTH AMERICA	$36,242	$21,055	$7,291	.....	1,518	$7,427	1,352	$1,114	25,601	$19,571	$7,711	$19,175	$19,430
ASIA													
British India	$3,982	$50	$99	.....	.....	.....	.....	.....	319	$290	.....	$3,635	$670
Ceylon	.....	.....	224	.....	.....	.....	.....	.....	.....	.....	.....	.....	83
Straits Settlements	507	426	880	.....	.....	.....	.....	.....	288	207	.....	.....	902
China	1,087	390	1,665	.....	.....	.....	10,078	$7,293	15	12	$92	4,781	1,284
Java and Madura	.....	336	25	.....	.....	.....	.....	.....	1,620	1,686	.....	.....	2,934
Other Dutch East Indies	.....	1,107	6	.....	.....	.....	.....	.....	.....	.....	.....	78	68
Hejaz, Arabia, etc.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hongkong	.....	.....	449	.....	84	$216	338	278	.....	.....	.....	.....	.....
Japan	4,212	11,627	22,645	$3,964	11,144	21,730	11,782	10,346	.....	.....	.....	3,247	.....
Kwangtung	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Palestine and Syria	.....	166	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Philippine Islands	2,484	2,491	448	.....	.....	.....	24,576	15,938	5,784	5,345	3,305	3,395	3,318
Russia in Asia	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Siam	867	.....	3,453	.....	.....	.....	.....	.....	360	286	.....	.....	.....
TOTALS, ASIA	$13,139	$16,593	$29,894	$3,964	11,228	$21,946	46,774	$33,855	8,386	$7,826	$3,397	$15,136	$9,259

United States by Countries During November, 1923

Waterproofed Clothing Value	Pneumatic Casings: Automobile Number	Pneumatic Casings: Automobile Value	Pneumatic Casings: Others Value	Solid Tires: Automobile and Motor Truck Value	Solid Tires: Others Value	Pneumatic Tubes: Automobile Number	Pneumatic Tubes: Automobile Value	Pneumatic Tubes: Others Value	Tire Repair Materials Value	Druggists' Rubber Sundries Value	Hard Rubber Goods: Battery Jars and Accessories Value	Hard Rubber Goods: Other Electrical Supplies Value	Hard Rubber Goods: Others Value	Other Rubber Manufactures Value
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	73	$1,504	.....	.....	.....	173	$353	.....	.....	.....	.....	.....	.....	$77
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	2,293	25,997	$1,698	$1,332	.....	2,193	3,731	$294	$852	$1,193	.....	.....	.....	1,584
.....	237	3,538	.....	.....	.....	405	794	.....	.....	.....	.....	.....	.....	.....
.....	149	4,815	.....	.....	.....	251	570	.....	.....	.....	.....	.....	$598	1,200
.....	182	3,497	.....	938	.....	31	52	.....	4,070	8,475	$35	.....	2,249	5,769
.....	14	266	.....	.....	.....	.....	.....	.....	1,115	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	99
$9	561	6,883	.....	1,363	$221	560	950	.....	77	.....	.....	.....	.....	569
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	270	2,207	.....	.....	.....	524	770	420	679	644	.....	.....	.....	291
.....	44	524	.....	.....	.....	32	59	.....	73	.....	.....	.....	.....	7
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	102	876	.....	.....	.....	82	125	.....	.....	.....	.....	.....	.....	54
872	575	7,258	570	787	.....	343	649	941	220	1,697	.....	.....	.....	2,550
.....	1,072	13,318	333	1,871	.....	1,416	2,670	.....	109	478	.....	.....	.....	1,020
.....	.....	.....	.....	.....	.....	.....	.....	.....	362	.....	.....	.....	.....	80
.....	.....	.....	.....	.....	.....	30	41	.....	.....	280	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	152	4,644	286	1,671	.....	24	65	36	3,479	365	.....	$400	.....	3,290
.....	3,271	47,148	3,458	4,251	.....	1,673	4,349	576	472	230	.....	.....	837	422
.....	30	1,197	.....	.....	.....	20	135	.....	.....	.....	.....	.....	.....	413
.....	.....	.....	.....	.....	.....	.....	.....	.....	132	.....	.....	.....	.....	.....
150	8,595	74,537	.....	99,243	583	4,587	25,017	503	3,159	22,791	.....	.....	9,491	65,364
196	29	310	.....	6,629	.....	.....	.....	.....	.....	.....	.....	.....	.....	568
.....	118	1,148	.....	.....	.....	81	133	.....	.....	.....	.....	.....	.....	400
.....	298	4,024	.....	352	.....	124	232	50	.....	.....	.....	.....	.....	86
$1,227	18,065	$203,691	$6,345	118,437	$804	12,549	$40,695	$2,820	$14,799	$36,153	$35	$400	$13,175	$83,843
$59	25	$428	.....	.....	.....	5	$14	.....	.....	$216	.....	$92	$166	$1,287
2,296	415	12,409	$139	$2,290	$12	539	1,938	$8	$2,347	2,262	$1,685	987	14,979	62,815
22	187	1,391	19	236	13	.....	.....	.....	106	1,129	420	.....	402	5,729
2,126	269	3,868	.....	559	11	191	421	.....	50	186	.....	.....	90	1,511
4	4	36	.....	.....	.....	.....	.....	.....	.....	6	.....	.....	.....	372
46	132	1,793	.....	.....	169	109	377	.....	29	.....	81	.....	230	328
238	35	668	.....	.....	.....	.....	.....	.....	.....	25	.....	.....	.....	77
411	52	779	36	.....	.....	90	184	.....	.....	56	.....	.....	.....	217
.....	31	313	.....	.....	.....	38	57	.....	.....	128	.....	.....	.....	433
321	559	8,385	517	787	.....	362	623	.....	.....	57	.....	1,056	90	4,183
156	197	4,096	.....	1,306	.....	217	515	.....	60	.....	.....	.....	.....	820
2,097	5,502	64,089	687	4,420	759	6,925	12,393	110	1,521	3,007	177	412	1,854	16,927
269	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
2,794	.....	.....	.....	.....	.....	.....	.....	.....	.....	83	.....	.....	.....	644
176	4	40	.....	.....	1,102	.....	.....	.....	.....	58	.....	.....	153	222
.....	102	1,282	.....	.....	.....	97	152	.....	.....	.....	.....	.....	.....	222
90	398	4,242	.....	992	247	317	477	.....	.....	5	.....	129	64	288
.....	116	1,572	.....	355	.....	83	185	.....	.....	83	.....	.....	.....	535
15	170	1,427	.....	.....	85	78	106	.....	.....	73	.....	28	.....	114
8,658	7,820	72,891	509	31,841	1,907	6,128	8,907	24	3,450	5,311	489	335	614	14,528
47	822	8,296	3	.....	73	1,249	1,909	111	216	376	.....	.....	52	244
115	122	1,080	.....	.....	.....	268	406	.....	29	8	.....	.....	.....	19
.....	189	2,473	.....	.....	.....	384	682	.....	28	.....	.....	.....	.....	73
.....	16	242	.....	.....	.....	49	74	.....	.....	18	.....	.....	.....	.....
$19,940	17,167	$191,800	$1,910	$42,786	$4,378	17,129	$29,420	$253	$7,836	$17,087	$2,852	$3,039	$18,694	$111,588
.....	3,917	$48,995	.....	$3,179	$1,525	4,526	$7,357	.....	$738	$4,425	$1,698	.....	$4,823	$6,922
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9
$726	873	9,371	.....	4,943	.....	575	709	.....	.....	1,149	140	.....	73	896
84	460	6,018	.....	1,878	1,030	652	1,273	$8	283	136	.....	.....	.....	2,299
108	829	12,841	$142	242	493	1,128	2,144	.....	152	702	.....	.....	4	467
.....	62	1,048	.....	.....	.....	49	89	.....	21	115	.....	.....	.....	1,021
51	6	66	.....	.....	.....	10	16	.....	.....	.....	.....	.....	32	383
.....	114	1,100	.....	.....	.....	152	220	.....	14	.....	.....	.....	39	335
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
370	1,493	22,390	.....	672	.....	1,401	2,845	.....	4	83	.....	.....	150	4,789
266	2,238	24,509	.....	11,300	.....	698	4,558	.....	.....	218	.....	$158	3	962
.....	995	15,585	668	305	424	1,490	2,323	14	316	2,497	.....	.....	2,841	637
$1,605	10,987	$141,923	$810	$22,519	$3,472	10,681	$21,534	$22	$1,528	$9,325	$1,838	$158	$7,965	$18,720
.....	1,116	$10,856	.....	$6,637	$6,214	970	$1,312	.....	$314	$118	$27	.....	.....	$1,464
.....	.....	.....	.....	255	.....	.....	.....	.....	.....	.....	.....	.....	.....	171
.....	809	6,813	.....	55	.....	95	252	.....	.....	.....	.....	.....	.....	22
.....	417	4,224	.....	308	.....	524	774	.....	183	878	26	.....	.....	3,467
.....	862	10,240	.....	2,120	2,979	340	688	$19	121	.....	.....	.....	.....	1,127
.....	.....	.....	.....	360	.....	.....	.....	.....	75	.....	.....	.....	.....	70
.....	112	1,047	.....	.....	.....	22	33	.....	45	.....	.....	.....	.....	.....
.....	5	114	.....	.....	.....	59	126	.....	.....	85	.....	.....	.....	1,036
$15	6,958	69,525	$128	20,823	.....	1,488	2,766	5	257	1,366	.....	$50	$2,066	12,589
.....	40	400	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	20	264	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	694
.....	2,555	32,355	510	2,304	7,334	2,139	3,591	763	305	257	19	.....	.....	4,368
.....	.....	.....	.....	.....	.....	28	108	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	43	.....	.....	.....	.....
$15	12,894	$135,838	$638	$32,862	$16,527	5,665	$9,650	$787	$1,300	$2,747	$72	$50	$2,066	$25,008

Exports of India Rubber Manufactures from the

EXPORTED TO—	Belting Value	Hose Value	Packing Value	Thread Value	Boots Pairs	Boots Value	Shoes Pairs	Shoes Value	Canvas Shoes with Rubber Soles Pairs	Canvas Shoes with Rubber Soles Value	Soles and Heels Value	Leather Cloth or Leather Artificial Value	Auto Cloth Waterproofed Value
OCEANIA													
Australia	$29,049	$3,234	.....	.....	.....	.....	.....	.....	.....	.....	.....	$27,356	$3,251
British Oceania	.....	13	.....	.....	.....	.....	24	$24	456	$417	.....	21	.....
French Oceania	.....	15	$27	.....	.....	.....	168	155	1,970	2,200	.....	.....	58
New Zealand	1,361	2,459	889*	.....	646	$2,705	216	747	24	41	$856	2,829	1,288
Other Oceania	.....	.....	.....	.....	.....	.....	.....	.....	147	197	.....	.....	.....
TOTALS, OCEANIA	$30,410	$5,721	$916	.....	646	$2,705	408	$926	2,597	$2,855	$856	$30,206	$4,597
AFRICA													
Belgian Kongo	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
British West Africa	.....	.....	.....	.....	10	$86	.....	.....	.....	.....	.....	.....	.....
British South Africa	$21,646	$17,327	$2,383	$46	48	166	72	$144	543	$471	$153	$6,228	$124
British East Africa	1,951	.....	349	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Canary Islands	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	55	.....	.....
Egypt	.....	49	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	370
Algeria and Tunis	3,512	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Liberia	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Portuguese East Africa	.....	.....	130	.....	.....	.....	.....	.....	.....	.....	61	.....	.....
Other Portuguese Africa	.....	35	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS, AFRICA	$27,109	$17,411	$2,862	$46	58	$252	72	$144	543	$471	$269	$6,228	$494
GRAND TOTALS	$177,613	$131,665	$79,502	$104,394	37,690	$97,533	105,940	$89,358	126,704	$107,175	$48,439	$226,788	$63,307

Rubber Statistics for the Dominion of Canada

Imports of Crude and Manufactured Rubber

	October, 1923 Pounds	October, 1923 Value	Seven Months Ended October, 1923 April-October Pounds	Seven Months Ended October, 1923 April-October Value
UNMANUFACTURED—*free*				
Rubber, gutta percha, etc.				
From United Kingdom	52,294	$15,247	2,655,568	$847,454
United States	1,276,973	337,780	10,301,704	2,900,442
Belgium	.....	.....	.....	.....
Brazil	.....	.....	.....	.....
British East Indies:				
Ceylon	.....	.....	.....	.....
Straits Settlements	424,606	121,606	3,271,532	983,743
Dutch East Indies	89,888	21,251	202,112	52,102
France	2,304	543	4,624	1,163
Other countries	.....	.....	116,052	27,536
Totals	1,846,065	$496,427	16,551,592	$4,812,440
Rubber recovered	242,104	25,651	1,592,435	147,920
Rubber, powdered and rubber or gutta percha scrap	127,028	2,921	2,423,444	87,577
Balata	2,325	1,896	6,534	5,767
Rubber substitutes	11,720	5,123	414,768	55,627
Totals, unmanufactured	2,229,242	$532,018	20,988,775	$5,109,331
PARTLY MANUFACTURED				
Hard rubber sheets and rods	15,265	$12,318	64,078	$38,180
Hard rubber tubes	.....	433	.....	11,959
Rubber thread, not covered	3,231	3,691	44,699	50,780
Totals, partly manufactured	18,496	$16,442	108,777	$100,929
MANUFACTURED				
Belting	.....	$9,823	.....	$90,019
Hose	.....	11,960	.....	80,518
Packing	.....	3,296	.....	28,369
Boots and shoes—*pairs*	22,872	21,649	78,626	117,919
Clothing, including waterproofed	.....	11,114	.....	119,994
Cloves	.....	1,975	.....	10,026
Hot water bottles	.....	1,465	.....	15,732
Tires, solid—*number*	91	4,172	5,366	59,897
Tires, pneumatic—*number*	1,679	27,943	60,919	616,779
Inner tubes—*number*	525	1,773	19,599	36,646
Elastic round or flat	.....	18,258	.....	172,944
Mats and matting	.....	448	.....	12,985
Cement	.....	1,301	.....	29,027
Other rubber manufactures	.....	101,778	.....	887,722
Totals, manufactured	.....	$216,955	.....	$2,278,576
Totals, rubber imports	.....	$765,415	.....	$74,888,836

Exports of Domestic and Foreign Rubber Goods

	October, 1923 Produce of Canada Value	October, 1923 Re-exports of Foreign Goods Value	Seven Months Ended October, 1923 April-October Produce of Canada Value	Seven Months Ended October, 1923 April-October Re-exports of Foreign Goods Value
UNMANUFACTURED				
Crude and waste rubber	$4,801	$37	$33,018	$33,409
Totals, unmanufactured	$4,801	$37	$33,018	$33,409
MANUFACTURED				
Belting	$47,077	.....	$136,591	.....
Canvas shoes, with rubber soles	45,330	.....	725,200	.....
Boots and shoes	61,687	.....	361,740	.....
Clothing, including waterproofed	468	.....	10,186	.....
Hose	14,480	.....	72,930	.....
Tires, casings	371,061	.....	3,269,147	.....
Inner tubes	44,600	.....	348,872	.....
Pneumatic	.....	.....	.....	.....
Solid	5,126	.....	60,554	.....
Vehicle	.....	$905	.....	$6,210
Other rubber manufactures	25,855	1,339	142,848	23,857
Totals, manufactured	$615,684	$2,244	$5,128,068	$30,067
Totals, rubber exports	$620,485	$2,281	$5,161,086	$63,476

MILLIONS LOST BY POOR MARKING OF PACKAGES

In a recent bulletin the Department of Commerce calls attention to the need of more careful stenciling of packages in export trade, the statement being made that losses from improper and incorrect marking now run into millions. The bulletin in question makes many suggestions for the use of exporters, particular mention being made regarding shipments of solid rubber tires. As no containers are used for such tires the marks should be stenciled on some part of the product where they can be easily seen and will not rub off. Shippers of solid rubber tires attached to rims put their marks inside the iron rim in white paint. Generally speaking, the stencil marking done by Americans is too small, according to reports from abroad received by the Department of Commerce.

JAPAN AS MARKET FOR BICYCLE TIRES

Bicycles are very generally used in Japan, but as the natives make up the majority of the cyclists, price rather than quality forms the basis of sales. The bulk of the tires used for these cycles are supplied by the Japanese Dunlop organization, while Germany, sending 62,000 tires last year, now occupies second place. Other sources represented are Holland, France, Singapore, and Italy.

United States by Countries During November, 1923—*Continued*

Waterproofed Clothing Value	Pneumatic Casings: Automobile Number	Pneumatic Casings: Automobile Value	Pneumatic Casings: Others Value	Solid Tires: Automobile and Motor Truck Value	Solid Tires: Others Value	Pneumatic Tubes: Automobile Number	Pneumatic Tubes: Automobile Value	Pneumatic Tubes: Others Value	Tire Repair Materials Value	Druggists' Rubber Sundries Value	Hard Rubber Goods: Battery Jars and Accessories Value	Hard Rubber Goods: Other Electrical Supplies Value	Hard Rubber Goods: Others Value	Other Rubber Manufactures Value
$130	7,479	$113,179	.....	$39,114	$2,101	3,394	$6,998	$63	$2,064	$2,380	$2,581	.....	$314	$11,724
.....	18	254	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	194
45	44	1,111	$17	84	62	82	359	12	.....	.....	133	.....	.....	.....
.....	391	10,154	.....	11,843	202	229	486	.....	849	356	52	.....	.....	2,562
.....	6	78	.....	.....	.....	18	30	.....	28	.....	.....	.....	.....	.....
$175	7,938	$124,776	$17	$51,041	$2,365	3,723	$7,873	$75	$2,941	$2,736	$2,766	.....	$314	$14,480
.....	4	$37	.....	.....	.....	8	$11	.....	.....	.....	.....	.....	.....	.....
.....	228	7,771	$204	.....	.....	205	753	$109	.....	.....	.....	.....	.....	$201
$332	405	5,216	.....	$1,766	.....	711	1,183	.....	$698	$530	.....	.....	.....	4,297
.....	258	2,920	.....	196	.....	102	170	215	29	.....	.....	.....	.....	.....
.....	294	3,783	.....	3,156	.....	16	25	.....	27	.....	.....	.....	.....	.....
.....	126	1,215	.....	.....	.....	304	471	.....	202	.....	.....	.....	$250	386
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14
.....	87	957	.....	.....	.....	214	321	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	61	100	28	.....	.....	.....	.....	.....	.....
$332	1,402	$21,899	$204	$5,118	.....	1,621	$3,034	$352	$956	$530	.....	.....	$250	$4,898
$23,294	68,453	$819,927	$9,924	$272,763	$27,546	51,368	$112,206	$4,309	$29,360	$68,578	$7,563	$3,647	$42,464	$258,537

United Kingdom Rubber Statistics

Imports

	November, 1923 Pounds	November, 1923 Value	Eleven Months Ended November, 1923 Pounds	Eleven Months Ended November, 1923 Value
UNMANUFACTURED				
Crude rubber From—				
Straits Settlements	10,233,000	£628,195	71,051,300	£4,580,646
Federated Malay States	2,770,100	170,499	33,219,000	2,046,738
British India	447,400	27,647	6,405,200	397,844
Ceylon and dependencies	2,160,900	133,015	21,972,000	1,343,190
Other Dutch Possessions in Indian Seas	319,300	19,188	2,371,300	151,138
Dutch East India (except other Dutch Possessions in Indian Seas	1,464,900	86,809	11,755,200	709,696
Other countries in East Indies and Pacific not elsewhere specified	113,900	7,282	1,245,900	81,581
Brazil	676,800	33,421	6,922,700	387,857
Peru	11,200	580	150,300	6,819
South and Central America (except Brazil and Peru)	.....	.....	277,900	14,915
West Africa				
French West Africa	23,600	943	827,700	40,448
Gold Coast	21,000	970	152,800	7,109
Other ports of West Africa	111,100	5,023	551,200	20,497
East Africa, including Madagascar	62,300	3,314	466,800	25,559
Other countries	39,800	3,374	1,171,400	68,361
Totals	18,455,300	£1,120,260	162,540,700	£9,881,798
Waste and reclaimed rubber	160,400	2,557	1,921,700	27,328
Gutta percha and balata	1,143,100	166,632	8,875,300	1,228,454
Rubber substitutes	2,400	82	40,300	796
Totals, unmanufactured	19,759,200	£1,289,531	173,378,000	£11,138,376
MANUFACTURED				
Boots and shoes...*doz. pairs*	4,316	£9,665	144,200	£257,579
Tires and tubes				
Pneumatic				
Outer covers	.....	204,754	.....	2,784,136
Inner tubes	.....	26,087	.....	330,559
Solid tires	.....	34,143	.....	252,051
Other rubber manufactures	.....	94,991	.....	923,612
Totals, manufactured	.....	£369,640	.....	£4,547,937

Exports

UNMANUFACTURED				
Waste and reclaimed rubber	341,800	£71,863	451,500	£82,995
Rubber substitutes	128,100	14,048	287,600	30,527
Totals, unmanufactured	469,900	£85,911	739,100	£113,522
MANUFACTURED				
Boots and shoes...*doz. pairs*	19,915	£37,328	202,167	£329,511
Tires and tubes				
Pneumatic				
Outer covers	.....	144,222	.....	1,446,507
Inner tubes	.....	24,047	.....	258,944
Solid tires	.....	29,563	.....	288,019
Other rubber manufactures	.....	208,053	.....	2,542,001
Totals, manufactured	.....	£443,213	.....	£4,864,982

Exports—Colonial and Foreign

	November, 1923 Pounds	November, 1923 Value	Eleven Months Ended November, 1923 Pounds	Eleven Months Ended November, 1923 Value
UNMANUFACTURED				
Crude rubber				
To Russia	4,704,700	£272,306	9,652,400	£597,978
Sweden, Norway and Denmark	156,600	10,064	1,554,200	98,501
Germany	1,212,400	82,423	12,223,800	769,949
Belgium	3,016,100	86,362	6,132,500	290,479
France	2,532,100	150,798	30,727,600	1,973,173
Spain	74,800	4,523	464,400	29,669
Italy	970,000	57,735	8,930,600	561,841
Austria	.....	.....	400	22
Hungary	.....	.....	45,100	3,421
Other European countries	196,900	13,620	1,798,300	117,552
United States	680,600	42,351	64,301,100	4,403,402
Canada	200	16	4,017,400	266,085
Other countries	56,400	3,656	910,100	59,138
Totals	13,600,800	£723,854	140,757,900	£9,171,210
Waste and reclaimed rubber	700	11	180,200	1,909
Gutta percha and balata	56,200	6,301	875,400	119,805
Rubber substitutes	20,200	837	33,300	1,190
Totals, unmanufactured	13,677,900	£731,003	141,828,300	£9,294,114
MANUFACTURED				
Boots and shoes...*doz. pairs*	550	£808	5,216	£9,103
Tires and tubes				
Pneumatic				
Outer cover	.....	16,204	.....	148,352
Inner tubes	.....	1,380	.....	21,317
Solid tires	.....	2,374	.....	13,526
Other rubber manufactures	.....	4,219	.....	47,999
Totals, manufactured	.....	£24,985	.....	£240,297

PRODUCTION OF PASSENGER CARS AND TRUCKS, 1921-23

	Passenger Cars 1921	Passenger Cars 1922	Passenger Cars 1923	Trucks 1921	Trucks 1922	Trucks 1923
January	.....	81,696	223,819	.....	9,576	19,720
February	.....	109,171	254,773	.....	13,350	22,161
March	.....	152,962	319,770	.....	20,022	35,260
April	.....	197,224	344,639	.....	22,640	38,656
May	.....	232,462	350,410	.....	24,097	43,678
June	.....	263,053	337,362	.....	26,298	41,145
July	165,616	225,086	297,330	11,136	22,046	30,663
August	167,756	249,492	314,373	13,400	24,692	30,829
September	144,670	187,694	298,911	13,978	19,462	28,638
October	134,774	217,566	335,023	13,149	21,795	30,166
November	106,081	215,352	*284,921	10,487	21,949	*28,066
December	70,727	208,010	275,268	8,656	20,354	27,875
Totals	789,624	2,339,768	3,636,599	70,806	246,281	376,257

*Revised.

Compiled by Department of Commerce, Washington, D. C.

Custom House Statistics

New York

Imports of Crude and Manufactured Rubber

	September, 1922		September, 1923	
	Pounds	Value	Pounds	Value
UNMANUFACTURED—*free*				
Crude rubber—				
From France	224,120	$20,171	.....	.....
Germany	.....	.....	2,862	$846
Netherlands	67,195	11,782	16,479	4,353
Portugal	.....	.....	53,760	6,989
England	807,324	118,070	314,310	73,903
Nicaragua	.....	.....	306	59
Panama	.....	.....	1,220	488
Mexico	.....	.....	22,400	5,600
Dutch West Indies	8,855	445	.....	.....
Brazil	976,697	132,945	1,279,854	291,742
Colombia	5,150	990	490,543	80,798
Ecuador	.....	.....	35,167	5,775
Peru	216,505	33,653	114,754	42,822
British India	65,380	12,796	74,560	26,421
Ceylon	3,121,107	450,689	3,606,611	927,400
Straits Settlements	29,932,393	4,096,537	11,435,824	2,811,615
Java	3,833,926	582,662	2,334,959	610,510
Dutch East Indies	3,173,542	490,127	3,497,585	974,582
Japan	.....	.....	249,825	37,474
Other Asia	.....	.....	22,400	7,467
French Indo China	20,329	6,233	.....	.....
Totals	42,452,523	$5,957,100	23,553,419	$5,908,844
Balata	119,332	79,260	243,112	108,598
Jelutong (Pontianak)	28,140	2,825	210,940	20,456
Gutta percha	52,956	8,946	130,480	21,816
Rubber scrap and reclaimed	56,415	4,247	454,351	37,026
Totals, unmanufactured	42,709,366	$6,052,378	24,592,302	$6,096,740
Chicle	264,502	$127,913	122,178	$68,257
MANUFACTURED—*dutiable*				
Rubber belting for machinery	.....	.....	37,141	$9,843
Other manufactures of rubber and substitutes	.....	$97,123	39,422	40,456
Totals, manufactured	.....	$97,123	76,563	$50,299

Exports of Domestic Merchandise

MANUFACTURED				
India rubber—				
Reclaimed	.....	.....	16,339	$1,859
Scrap and old	288,715	$17,332	571,221	30,649
Footwear—				
Boots ...*pairs*	16,768	41,230	24,504	52,699
Shoes ...*pairs*	186,454	109,231	104,516	82,317
Canvas shoes with rubber soles ...*pairs*	169,327	136,071	140,836	127,026
Druggists' rubber sundries	32,569	39,285	41,354	37,267
Hard rubber goods—				
Battery jars and accessories	8,945	1,852	222	85
Other electrical supplies	3,309	1,731	3,016	2,936
Other hard rubber goods	32,794	29,083	10,912	13,771
Tires—				
Pneumatic casings				
For automobiles	87,776	1,002,768	65,774	783,301
Others	2,704	8,433	2,284	7,593
Pneumatic tubes				
For automobiles	58,632	103,401	50,900	89,077
Others	3,137	3,386	2,305	1,761
Solid tires				
For automobiles and motor trucks	2,278	63,961	6,660	164,583
Others	61,759	17,387	35,709	8,219
Tire repair materials	32,892	12,191	54,360	25,696
Belting	158,504	77,260	235,267	139,054
Hose	173,063	65,330	248,925	97,733
Packing	83,621	37,101	96,892	45,385
Soles and heels	104,280	45,093	80,887	31,285
Thread	48,000	50,647	27,611	29,789
Other rubber manufactures	170,403	128,699	236,929	148,788
Totals, manufactured	.....	$1,991,472	.....	$1,920,873

Exports of Foreign Merchandise

UNMANUFACTURED				
Crude rubber	10,502	$2,935	85,820	$19,273
Balata	31,087	15,055	7,372	5,100
Gutta percha	.....	.....	11,412	3,467
Totals, unmanufactured	41,589	$17,990	104,604	$27,840
MANUFACTURED				
Rubber manufactures	.....	$752	.....	.....
Rubber substitutes	.....	.....	.....	.....
Totals, manufactured	.....	$752	.....	.....
Chicle	.....	.....	.....	.....

New York

Imports of Crude and Manufactured Rubber

	October, 1922		October, 1923	
	Pounds	Value	Pounds	Value
UNMANUFACTURED—*free*				
Crude rubber				
From Azores	11,200	$2,240	.....	.....
Belgium	1,469,394	149,392	11,126	$3,606
France	11,072	1,377	82,313	28,724
Germany	.....	.....	33,600	5,040
Netherlands	157,166	28,947	203,297	60,363
England	5,308,023	794,717	111,343	39,786
Nicaragua	1,497	220	435	87
Trinidad	.....	.....	9,136	5,595
Brazil	2,512,825	312,084	979,628	206,447
Colombia	4,162	668	16,989	2,527
Ecuador	.....	.....	250,673	43,008
British Guiana	.....	.....	5,500	3,688
Peru	51,973	17,246	11,896	5,766
Uruguay	.....	.....	12,341	2,984
Venezuela	.....	.....	26,713	16,676
British India	256,438	36,301	126,136	26,155
Ceylon	12,067,505	1,565,781	3,505,301	948,876
Straits Settlements	40,653,537	5,452,626	24,183,331	6,347,020
Java	3,787,572	706,243	3,259,399	856,418
Dutch East Indies	4,599,797	668,845	4,728,310	1,264,793
Guatemala	2,620	105	.....	.....
Totals	70,894,781	$9,736,792	37,557,467	$9,867,554
Balata	156,320	$84,847	247,039	$157,748
Jelutong (Pontianak)	118,931	10,849	778,517	64,662
Gutta percha	88,322	11,223	284,466	58,617
Rubber scrap and reclaimed	242,839	16,735	514,295	24,591
Totals, unmanufactured	71,501,193	$9,860,446	39,381,784	$10,173,172
Chicle ...*dutiable*	591,677	$313,691	404,338	$202,341
MANUFACTURED—*dutiable*				
Rubber belting for machinery	11,959	$11,371	20,023	$10,965
Other manufactures of rubber and substitutes	.....	43,802	.....	77,740
Totals, manufactured	11,959	$55,173	20,023	$88,705

Exports of Domestic Merchandise

MANUFACTURED				
India rubber				
Reclaimed	7,851	$821	46,040	$4,214
Scrap and old	388,220	16,912	645,457	32,724
Footwear				
Boots ...*pairs*	16,518	33,499	28,400	67,199
Shoes ...*pairs*	129,319	126,122	84,938	71,455
Canvas shoes with rubber soles ...*pairs*	181,943	132,215	165,674	144,625
Druggists' rubber sundries	72,183	71,354	49,360	50,583
Hard rubber goods				
Battery jars and accessories	14,885	4,115	4,215	2,007
Other electrical supplies	17,494	7,561	1,684	1,922
Other hard rubber goods	29,757	27,984	12,409	11,542
Tires				
Pneumatic casings				
For automobiles	94,695	1,153,268	54,186	659,608
Others	4,286	16,396	1,883	6,447
Pneumatic tubes				
For automobiles	56,640	105,289	38,261	68,735
Others	3,386	4,338	2,902	2,087
Solid tires				
For automobile and motor trucks	3,660	93,701	5,602	145,530
Others	25,853	6,949	77,608	18,213
Tire repair materials	38,307	16,036	32,454	15,676
Belting	217,241	103,457	247,780	146,550
Hose	178,838	65,746	256,653	102,713
Packing	74,623	33,899	62,139	32,454
Soles and heels	117,568	45,083	116,791	38,709
Thread	50,721	63,106	46,695	47,802
Other rubber manufactures	146,399	88,943	241,220	177,264
Totals, manufactured	.....	$2,216,794	.....	$1,848,059

Exports of Foreign Merchandise

UNMANUFACTURED				
Crude rubber	16,214	$7,847	5,182	$1,539
Balata	22,843	9,004	12,072	8,431
Gutta percha	560	269	1,479	192
Rubber, scrap and reclaimed	2,296	195	.....	.....
Totals, unmanufactured	41,913	$17,315	18,731	$10,162
MANUFACTURED				
Rubber manufactures	.....	$98	848	$851
Rubber substitutes	.....	.....	.....	.....
Totals, manufactured	.....	$98	848	$851

Judicial Decisions

Treasury Decisions

Protests 967,152 and 967,153 of D. C. Andrews & Co., Boston, Massachusets.

RUBBER BUBBLES.—The articles in question consist of small tubes of licorice candy to which are attached small uninflated balloons composed of rubber.

The question is, as to protest 967,152, whether this merchandise is dutiable as toys at 70 per cent ad valorem under paragraph 1414 of the tariff act of 1922, as classified and assessed with duty by the collector, or at 25 per cent ad valorem as licorice under paragraph 48, or as confectionery under paragraph 505 of the same act. The same question is presented under protest 967,153. In that protest, however, the merchandise was entered under the tariff act of 1913, the conflicting paragraphs being 342, 40, and 180 of that act.

Following a lengthy discussion the protests were sustained by the United States General Appraisers, the final decision being that the articles were dutiable as follows:

As to protest 967,152, at 25 per cent ad valorem under paragraph 48, act of 1922; and as to protest 967,153, at 1 cent per pound under paragraph 40, act of 1913.—*Treasury Decisions*, Vol. 44, No. 24, page 25.

Adjudicated Patents

MCLEOD TIRE CORPORATION VS. B. F. GOODRICH CO. United States Circuit Court of Appeals—Second Circuit. Decided December 28, 1922. (287 Fed. Rep. 329.)

PATENTS—1,029,307 and 1,055,577, for tire construction, void for anticipation.

The McLeod patents, No. 1,029,307, for a method of making tire casings, the essence of which is the vulcanizing of the tire while stretched or expanded by pressure applied from within, and No. 1,055,577, for the product of such method, held void for anticipation in the prior art and prior use.

In an appeal by the McLeod Tire Corporation from the former decision rendered by the District Court of the United States for the Southern District of New York where the decision had been in favor of the defendant, the final verdict was that the McLeod patents were void, because of anticipation in the prior art and prior use.—*Official Gazette* of United States Patent Office, Vol. 318, page 237.

SEIBERLING VS. JOHN E. THROPP'S SONS CO. U. S. Circuit Court of Appeals—Third Circuit. Appeal from the District Court of the United States for the District of New Jersey; Joseph L. Bodine, judge.

1. PATENT—941,962, for tire shoe making machine, held valid and infringed.

The State patent, No. 941,962, claims 4-7, 12, 13, 22-26, for a pneumatic tire shoe manufacturing machine, consisting of the combination of the core wheel, used in the hand process of manufacturing, rotated at a rapid speed, causing radial stretch of the fabric, with spinning rolls mounted on a moving platform and pressing and cementing the fabric, while stretched and puckerless, to the sides of the shoe; held a cooperating combination, and not a mere mechanical aggregation, to involve novelty, utility, and invention, and not anticipated; also held infringed.

2. SAME—Test of combination is coacting of elements.

The general principle is that the earmark of a patented combination is the coacting of the elements to produce a unitary result.

3. SAME—Disclaimer held not to invalidate.

Where the essence of a patented tire shoe manufacturing machine was the combination of a power-driven core with spinning rolls mounted on a radial moving support and so laterally pressed as to compel them to follow the lessening contour of the shoe down to the bead edge, a disclaimer withdrawing all claims embodying a tread roll and limiting other claims to the operation of the elements on that part of the core outside the tread portion, and then only when driven at a sufficient high speed of rotation to operate as described; held not to invalidate the patent.

From a decree for defendant, plaintiff appeals. Decree vacated and case remanded with instructions.—*Official Gazette* of United States Patent Office. Vol. 317, page 494.

Rubber Trade Inquiries

The inquiries that follow have already been answered; nevertheless they are of interest not only in showing the needs of the trade, but because of the possibility that additional information may be furnished by those who read them. The Editor is therefore glad to have those interested communicate with him.

(323) We are asked to furnish addresses of brokers handling guayule and African flake.

(324) A correspondent is desirous of getting in touch with manufacturers of hard rubber combs.

(325) A subscriber requests the name of the manufacturer of the Kay & Foxwell guide, for guiding a wrapper as it is wound up with a roll of rubber-covered fabric.

(326) We are asked as to the possibility of substituting a soft rubber that would expand and grip instead of the hard rubber used in the small tip that fits into the ear in a hearing device.

(327) Addresses are requested of manufacturers of metal burrs used in rubber heels.

(328) We are asked for a source of supply of jelutong.

(329) From Austria comes an inquiry for addresses in this country of manufacturers of dipped goods for export trade.

(330) From England comes a request for addresses of American manufacturers of valves for air cushions and swimming collars and of hot water bottle stoppers.

(331) Inquiry is made as to makers of rubber liners for ball mills.

(332) We are asked to recommend manufacturers of machinery and equipment for making rubber heels and soles, and engineers to plan the factory layout.

Foreign Trade Opportunities

Addresses and information concerning the inquiries listed below will be supplied to our readers through the Foreign Trade Bureau of The India Rubber World, 25 West 45th street, New York, N. Y. Requests for each address should be on a separate sheet and state number.

Number	Country and Commodity	Purchase or Agency
8695	France—Automobile tires and used inner tubes	Purchase
8718	France—rubber boots	Purchase
8754	Spain—Sporting goods, including foot balls, hockey balls, golf balls, etc	Purchase and agency
8841	Italy—Mechanical rubber goods	Agency

TOY BALLOONS FOR ANGLERS

Rubber toy balloons are being advertised by enterprising western sporting goods dealers as a novelty in fishing tackle, in connection with live mice.

An angler who had failed to lure large bass with ordinary bait hit upon the idea of catching some mice, attaching hooks to them, buoying each mouse with a toy balloon, and then casting the combination well out into the water, letting mouse and supporting balloon drift with the wind.

The scheme worked, and catches of 4, 5, and 6-pounders were made in succession. The method is equally effective for lake trout, salmon, muskellunge, and other game fish. The toy balloons are easily inflated near the waterside from a steel cylinder carrying 300 cubic feet of compressed hydrogen.

REPLETE WITH INFORMATION FOR RUBBER MANUFACTURERS—H. C. Pearson's "Crude Rubber and Compounding Ingredients."

INDIA RUBBER WORLD
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CAOUTCHOUC
GUTTA-PERCHA
Reg U.S.Pat Off.
Reg United Kingdom.

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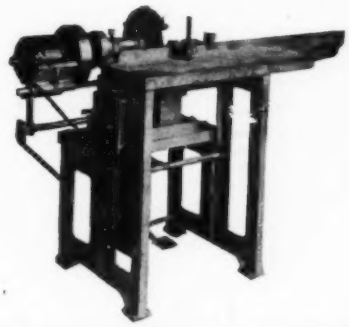
AUTOMATIC MACHINERY



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Our Publicity Page

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THE table of contents of a trade paper is its portrait. Just as an experienced observer reads the character of a man in his portrait, so readers specializing in any given business find the character of their favorite trade paper revealed in its table of contents. The portrait characteristics of the table of contents of THE INDIA RUBBER WORLD month by month reflect its alert, expert, broad-gaged, unbiased, farsighted policy of presenting to its readers all the latest developments and tendencies in the whole field of the rubber and allied industries throughout the world.

The Clearing House of Rubber Trade Ideas

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No man on whom any department of a going business depends for leadership can be successful if his knowledge is confined to his own job, his own company, or his own branch of the industry. That is why the readers of THE INDIA RUBBER WORLD demand the things they are getting in it and are willing to help provide them by swapping experiences through its pages. Thus they keep in touch with the whole field of the industry. By themselves encouraging these exchanges they can apply the experiences of others to the conduct of their own businesses and thereby help to build success for themselves and their companies.

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To the offices of most rubber companies here and abroad, and to the private offices of most of their executives, THE INDIA RUBBER WORLD goes regularly. There are usually to be found files covering many years, often from the first issue, dated October 15, 1889. They constitute the executive's encyclopedia of the rubber business —a ready reference work containing the correct answer to many a puzzling question, and is never out of date.

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